JUL 8 1920

Vol. X JULY, 1920 No. 7

AMERICAN JOURNAL OF PUBLIC HEALTH

THE JOURNAL *of the* AMERICAN PUBLIC HEALTH ASSOCIATION

IN THIS JOURNAL

Dr. Ferrell studies Salaries of Health Officers
Lt. Col. Cumming discusses Dishwashing
Dr. Kellogg tells about Plague in California
Dr. Dowling writes about Hookworm Disease
And the customary Editorials and Notes

List beginning page 612 raises number of New Members to 1500.

Have You sent in your Member?

A. P. H. A. Meeting, San Francisco, Cal., September 13-17, 1920

Association Headquarters at the Palace Hotel
Meetings at the Auditorium, Civic Center

Published monthly on the 20th by the American Public Health Association at
124 W. Polk Street, Chicago, Ill.

ADDRESS EDITORIAL MATTER TO
169 MASSACHUSETTS AVE.
BOSTON, MASS.

Subscription Price, $4.00 per Year. Single Copies, 50 cents.
A. P. H. A. Membership, Including Subscription, $5.00 per year.

Entered as second class matter January 20, 1920, at the postoffice at Chicago, Illinois, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized February 20, 1920.

LEITZ MICROSCOPES ARE THE STANDARD OF THE WORLD

Research and Micro Photographic Microscope "AA."

Leitz Microscopes
And Other Leitz Apparatus

It is with grateful appreciation that we acknowledge the many inquiries we have received during a period when we could give negative advice only relative to the supply of Leitz Apparatus.

The interest which has been manifested is proof of how highly the quality of Leitz products has been appreciated. The confidence issued by our valued patrons will be rewarded in knowing that *the present "Leitz-Quality" of optical and mechanical workmanship is not only equal to the high standard which has been recognized prior to the war but that important scientific developments have advanced this standard to a still further degree.*

We are now able to accept orders for Leitz Microscopes and other Leitz Instruments. Our present stock is still restricted, while we will soon have available a complete assortment of Leitz products. Orders for importation can be executed within approximately ninety days; orders placed for delivery from stock will be filled promptly for those items on hand. Consignments will reach us at frequent intervals and serious delay is therefore not anticipated.

NOTE: Upon request we will forward a list of Leitz Publications for your selection.

Kindly specify the article you are interested in and we will submit literature and estimate.

LEITZ-QUALITY IS OPTICAL AND MECHANICAL WORKMANSHIP

E. LEITZ INC. NEW YORK 60 East 10th St

LEITZ-QUALITY IS NOT SURPASSED OR EQUALED BUT SUPREME

American Journal of Public Health
Official Monthly Publication of the American Public Health Association
Publication office: 124 W. Polk Street, Chicago, Ill.
Editorial office: 169 Massachusetts Ave., Boston, Mass.

Subscription price, $4 per year. American Public Health Association membership, including subscription, $5 per year. Subscriptions and memberships may be sent to the A. P. H. A., 169 Massachusetts Ave., Boston, Mass.

Vol. X JULY, 1920 No. 7

COMPENSATION OF HEALTH OFFICERS

JOHN A. FERRELL, M.D., Dr. P.H.,
International Health Board, Rockefeller Foundation,
New York City.

Read before the Conference of State and Provincial Health Authorities, Washington, D. C., May 25, 1920.

Hope for the health officer in point of salary is what Dr. Ferrell holds forth. Compensation, although inadequate, is steadily increasing, and there is demand for competent men. Salaries must depend on the good faith of a public that is learning the value of efficient professional service. Health officers' associations carry weight in forming public opinion.

THE compensation scale for health officers has been a constant source of concern to those who have dedicated themselves to this field. The high cost of living has rendered the situation quite critical for a large part of the population, and health officers have been no exception to the general rule. Despite the fact that in the salary scale for health officers there has been a gradual increase from year to year, the diminished purchasing power of the dollar has rendered the present salary scale lower than that which prevailed five years ago. There is encouragement for these officers, however, in the nation-wide movement for lower prices, and in the fact that the public is beginning to discriminate, as to the justness of the claims of different groups that are seeking higher compensation.

If health officers are to be adequately rewarded for the duties and responsibilities resting upon them, the education of the public with regard to the meaning of thorough public health work must be accelerated. It is at present far from complete. Associations of health officers, through the various channels which can be employed for reaching the people, must take every measure necessary for thoroughly acquainting the public with the ideals and principles for which they stand. Work of this character is more advanced in some states and communities than in others. The results it has yielded, where it has been wisely employed, have been most satisfactory. The community has recognized that the real health officer must have broad sympathies and thorough academic, professional, and business training; and that he must understand the methods to be employed in dealing, not only with law-makers and

When writing to Advertisers, say you saw it in the Journal

other leading citizens, but also with the less fortunate classes, to whose welfare the health work usually makes its greatest contribution. The community knows that he appreciates the position of the taxpayers, and it depends upon him to supply them a full statement of the work he has accomplished and of the use which he has made of the funds placed at his disposal. The community is coming to regard him as its servant: an essential factor in the most important branch of human progress,—good health.

Unlike the physician in private practice, his material rewards are not dependent upon haphazard personal fees, but on the good faith of a public which is rapidly learning to pay adequately for efficient professional service. In the case of the health officer, this service consists of protecting the community by saving it from preventable sickness, death, and other losses. The community—whether nation, state, county, city, or town—is his patient. He makes a comprehensive examination, outlines the ailments, and prescribes the remedies. His duty does not stop there, however; he must see that the remedies are employed. His professional success depends upon the good health of the community.

An index showing the growth in public appreciation of health work is afforded by reviewing the phenomenal growth in state and local appropriations for the work during the past ten years. In the years 1908 and 1909, for example, each of several of the Southern States had state appropriations of less than $15,000 a year; at present they have approximately $150,000 or more per year. Then, the counties and the cities in the South, with rare exception, had no full-time health officers; now the full-time health officers in the local political units are quite numerous. Many of the counties and cities have not stopped with the employment of the full-time health officer, but have also established creditable health organizations. The movement throughout the nation is gaining such momentum that the associations of health officers carry a large responsibility for giving it guidance.

Many localities remain, however, in which the public has far from a proper conception of the value of health work. In these communities the expenditures are generally small and the people have not been convinced of the wisdom of devoting larger sums to the conservation of health. The reasons lie partly in the influence of politics, partly in the unwise selection of health officers, partly in shortage of funds, and partly in a cause which concerns both the strong and the weak health organizations; namely, the shortage of qualified men. Regardless of the causes responsible for the unfortunate situation, the people cannot be expected, where it exists, to give public health work the legal and financial backing its success requires, nor to view with favor proposals to increase the health officer's compensation.

Although much remains to be accomplished in the field of public health before the rank and file health officers can feel certain of satisfactory tenure of office and adequate compensation, the outlook, in the light of developments during the past ten years, is most gratifying. Many states and cities are employing business *experts* at salaries higher than are allowed the highest paid elective officials. Moreover, the present assured income of successful health officers, when compared with the more or less uncertain net income of private practitioners, has many attractions for the young man who is completing his medical education.

SALARIES IN PUBLIC, SEMI-PUBLIC, AND PRIVATE HEALTH WORK

In the United States Public Health Service, as a result of recent legislation, the compensation of commissioned officers has been advanced fifteen to thirty per cent, with the result that salaries have been increased in amounts ranging from $600 to $840 per year. The new basis allows an income running from ap-

proximately $3,000 a year for past assistant surgeons to approximately $6,000 a year for assistant surgeons general. *The Medical Journal* of England, at the suggestion of the Society of the Medical Officers of Health of the British Medical Association, has recently announced that it will reject all advertisements for assistant medical officers of health when the salary offered is less than £500. In referring to the personnel of the United States Public Health Service, it is gratifying to state, as an evidence of the upward trend in public health work, that the number of commissioned officers has grown from 128 in 1910 to 218 in 1919; that the number of scientifically trained staff members has grown from 1,350 in 1910 to 3,746 in 1919; and that the appropriation for compensating the personnel has grown from $660,620 in 1910 to $1,778,476 in 1919.

In state health work the compensation scale for the chief executive officers of health for the year 1919 ranged from $1,000 in Arizona to $10,000 in Pennsylvania. The great majority of salaries lie between $3,000 and $6,000 per year. A creditable number of states pay $5,000 or more. The salaries for assistant state health officers of state boards of health likewise vary widely from $1,200 a year for the assistant executive officer in North Dakota to $6,500 a year for the assistant executive officer in Pennsylvania. The majority of the officials heading divisions receive from $2,500 to $4,000 per year. The wide differences in salary scales can be better appreciated if consideration is given to the fact that the total state appropriations for health work range from about $15,000 a year in New Mexico and South Dakota to more than $2,600,000 per year in the State of Pennsylvania.*

For county health officers, the compensation scale in the various states where this kind of work has been developed ranges from $2,400 to $5,000 per year. Quite a large number of counties are now paying from $3,000 to $3,600 for health officers. During the present year a number of vacancies have occurred for which these salaries were offered

In city health work likewise, the scarcity of qualified health officers has resulted in the payment of increased salaries. Cities announced in 1919 a half-dozen or more vacancies for health officers carrying salaries ranging from $4,000 and $6,000 per year. Moreover, in institutions desiring to give courses in public health there have been numerous vacancies. One of these positions at least carried a compensation of $6,000.

Among private health agencies—such, for example, as the American Red Cross, the American Social Hygiene Association, and the International Health Board —vacancies now exist for men who can qualify for positions carrying, immediately or ultimately, salaries ranging from $2,500 to $7,500 per year.

The writer has no immediate accurate knowledge as to the compensation scale nor the number of vacancies for executives qualified for the administration of general hospitals, hospitals for the insane, hospitals for the tubercular, and other state and private institutions of a similar nature. It stands to reason, however, since exceptional ability is necessary for the successful management of such institutions, that the compensation scale, in comparison with that paid by other agencies, must be attractive if suitable men are to be obtained.

An enumeration of the various branches of the government and of some public and private health agencies which are in the market for qualified health officers would be incomplete if we should neglect to mention the great field which is rapidly developing in industrial hygiene and sanitation. The compensation scale allowed by industrial organizations is usually not a matter of public informa-

*The author is indebted to Dr. C. St. Clair Drake, State Health Officer of Illinois, for data given in the paper regarding salary scales and health appropriations of the several states. A summary of the facts collected by Doctor Drake appears at the end of this paper. (Page 574.)

tion. We do know, however, that the executive officers of such enterprises do not hesitate to invest their money in brains. The compensation allowed for this work is said to range from $3,000 to $15,000 per year, and it is altogether probable that the salaries of the most successful men in this field equal or exceed those of health officers employed by public or semi-public agencies.

REMUNERATION OF HEALTH OFFICERS AND PRACTICING PHYSICIANS COMPARED

The greatest single obstacle with which the numerous health agencies are now confronted is a shortage of men. The agencies which are not restricted legally or otherwise will naturally pay the price necessary to secure the men they wish to have. This, in turn, will work at least a temporary hardship on less favored health agencies. Ultimately, however, the necessary adjustment will be made all along the line; and the health officer will doubtless come to be envied by professional men in other fields of endeavor, particularly by physicians, whose field will probably become more restricted as public health work grows in scope and in effectiveness.

Even now the average net income of physicians is not particularly attractive, if the limited published data on the subject is reliable. For example, a newspaper of Richmond, Virginia, reported in 1915 that the American Medical Directory credited Richmond with 330 physicians. According to the state income tax returns for that year, only 32 of these were able to report incomes of $4,000 or over. A similar basis for arriving at estimates has been published for Wisconsin. Of approximately 2,800 physicians in the state, it appears that for the year 1914 only about 1,642, or sixty per cent. filed income tax returns which were legally required of all persons having a net income of $1,000 or more yearly. The sixty per cent of the state's physicians who filed income tax returns reported an average income for the year of approximately $3,000. The net incomes of physicians are reported to be frequently less than half of their gross receipts.

DEVELOPMENT OF FACILITIES FOR TRAINING HEALTH OFFICERS

In addition to the factors which have already been mentioned as among those to which the associations of health officers should attend, including the education of the public with regard to the principles and practices of preventive medicine and the wide dissemination of reports dealing with striking achievements, one of the most important problems involves the production of a larger number of trained health officers. The demand for these officers has been growing year by year, until the situation has become acute. In a large number of instances, funds for health work are available, but cannot be used because of the impossibility of finding suitable executives. The associations of health officers should direct their energies to interesting a larger number of medical students, medical interns, and practicing physicians in the possibilties of public health work as a career, and should endeavor to have those men who are interested take the special training necessary to fit them for the work.

One step that would go far toward relieving the shortage of qualified men would be for health departments so to arrange their programs as to give employment during the summer months to medical students. Many of the students who are so employed acquire during this period their first intimate knowledge of the interests and possibilities of public health work, and not only choose the field as a career for themselves, but become in a sense missionaries for the cause among their fellow students.

The need of additional facilities for training health officers has been generally recognized. Already fifteen institutions in this country and four in Canada are offering courses in public health. Detailed information regarding the courses offered by each institution will

EXHIBIT B

EXHIBIT B

Data Concerning American and Canadian Medical Schools Offering Courses in Public Health Work

State	City	College	Degrees, Certificates or Diplomas Offered	Entrance Requirements	Time Required to Complete Course
Colorado	Boulder	University of Colorado	.....†	.....†	.....†
Connecticut	New Haven	Yale University	Certificate in Public Health	A.B., B.S., or 2 years' medicine	1 year
"	" "	" "	Doctor of Philosophy	A.B.	3 years
"	" "	" "	Doctor of Public Health	M.D.	2 years
Illinois	Chicago	Chicago Hospital College of Medicine	.....†	.....†	.....†
Kentucky	Louisville	Univ. of Louisville and Ky. State Board of Health	.....†	.....†	.....†
Louisiana	New Orleans	Tulane University	Doctor of Public Health	M.D.	.....†
"	" "	" "	Certificate in Public Health	M.D.	.....†
"	" "	" "	Diploma in Tropical Medicine and Hygiene	M.D.	.....†
"	" "	" "	Teacher's Certificate	Teaching Experience	.....†
Maryland	Baltimore	Johns Hopkins University	Doctor of Public Health	M.D., A.B., or B.S. or its equivalent	2 years and one summer
"	"	" " "	Doctor of Science in Hygiene	A.B. or B.S. Courses in Chemistry, Physics, and Biology	3 years
"	"	" " "	Bachelor of Science in Hygiene	2 years' college work, Certificate in Chemistry, Biology, and Physics	2 years
"	"	" " "	Certificate in Public Health	M.D., A.B., or B.S.	1 year
"	"	" " "	Special Courses	.....†	.....†
Massachusetts	Boston	Harvard University and Massachusetts Institute of Technology	Certificate in Public Health	M.D.	1 year
"	"	"	Certificate in Public Health	2 years in medicine, A. B. or B.S.	2 years
"	"	"	Doctor of Public Health	A.B., M.D.	2 years
Michigan	Detroit	Detroit College of Medicine and Surgery	.....†	M.D.	1 year
"	Ann Arbor	University of Michigan	Master of Science in Public Health	A.B., M.D.	1 year
"	" "	" " "	Doctor of Public Health	.....†	.....†
New York	Albany	Albany Medical College	.....†	M.D.	14 weeks
" "	New York	New York University	Diploma in Public Health	M.D.	2 years
" "	" "	" " "	..... †	..... †	2 weeks (summer)
" "	" "	" " "	..... †	..... †	Correspondence
" "	Syracuse	Syracuse University	..... †	..... †	Special Course
Ohio	Columbus	Ohio State University	Master of Science in Public Health	A.B. or its equivalent	1 year
Pennsylvania	Philadelphia	University of Pennsylvania	Doctor of Public Health	M.D.	1 year
"	" "	" " "	Certified Sanitarian	2 years' college	1 year
Wisconsin	Madison	University of Wisconsin	Master of Public Health	M.D.	1 year
"	"	" " "	Doctor of Public Health	M.D.	2 years
Canada	Kingston	Queens University	Doctor of Science	M.D.	2 years—Thesis with Special Research
"	"	" "	Diploma in Public Health	B.S., M.D.	.....†
"	London	Western University	Diploma in Public Health	.....†	.....†
"	Toronto	University of Toronto	Diploma in Public Health	M.D.	1 year
"	Montreal	Laval University	Diploma in Public Hygiene	M.D.	1 year
"	"	" "	Doctor of Public Health	M.D.	.....†

†Details not available.

be found in the accompanying tabulation. These schools need and should have the counsel and co-operation of the health officers. A number of men already in public health work would be greatly strengthened in their work by such courses. Many of the state boards of health have been able to conduct courses of from one to two weeks for those now engaged in health work and those who expect to engage in it. These short courses serve a useful purpose and should be given more systematically and more frequently.

CONCLUSION

1. Although the compensation scale for health officers is too low, it has been steadily increasing year by year for the past ten years. The present shortage of men qualified to fill existing vacancies which carry attractive salaries would indicate that the compensation scale will continue to advance.

EXHIBIT A.
COMPENSATION SCALE IN DOLLARS—STAT BOARDS OF HEALTH EXECUTIVE OFFICERS AND CHIEF OF DIVISIONS

STATES	Executive Officer	Asst. Executive Officer	CHIEFS OF DIVISON										[2] Resources of S. B. H.—1919
			Communicable Diseases	Laboratory	Sanitary Engineering	Vital Statistics	Child Hygiene	Education	County or Rural Sani	Venereal Diseases	Tuberculosis	Epidemiologist or Specialist	
Alabama	$5000	$2000	$3000	$3000	$2520	$3300	$2400	$3000	$3000	$3000	.....	$3000	$ 90
Arizona	1000	.....	.....	.....	.....	.....	600	.....	2400	1500	.....	.....	22
Arkansas	4500	.....	.....	.....	3000	2100	.....	.....	.....	.....	.....	2000	61
California	4500	2400	3600	.....	4000	2400	3000	.....	.....	.....	3000	3600	307
Colorado	2000	.....	.....	.....	.....	.....	.....	.....	.....	3000	.....	2500	48
Connecticut	4000	4000	3000	2500	2500	2500	2500	.....	.....	.....	.....	.....	228
Delaware	3000	.....	.....	3000[3]	.....	.....	.....	.....	.....	2100	.....	.....	23
Florida	3000	3000	.....	3000	3000	2750	2750	.....	.....	3000	.....	.....	155
Dist. of Columbia.	4000	2500	2750	.....	.....	1800	.....	.....	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Idaho	3000	2500	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	29
Illinois	6000	3600	3600	3600	4000	2400	4000	2400	2200	4200	.....	3000	332
Indiana	3000	2750	.....	3500	.....	1800	1800	.....	.....	1500	.....	2500	159
Iowa	3900	.....	.....	.....	2500	.....	.....	.....	.....	6000	.....	2400	78
Kansas	4000	.....	3300	.....	.....	2400	2000	.....	.....	2500	.....	.....	136[4]
Kentucky	1200	2400	.....	.....	.....	3000	.....	.....	2400	2400	2400	2400	135
Louisiana	5000	.....	.....	.....	3000	2500	2500	.....	.....	4500	.....	2600	60
Maine	4000	.....	2000	2200	2200	.....	.....	.....	.....	2500	.....	.....	76
Maryland	3750	.....	3000	3000	3000	2400	.....	.....	.....	.....	.....	3000	180
Massachusetts	7500	.....	4000	1500	5000	.....	3500	.....	.....	.....	.....	4000	346
Michigan	4500	2500	3000	3000	3000	.....	.....	1800	.....	3000	.....	1800	230
Minnesota	4500	3500	3500	.....	3500	2000	180	.....	.....	2500	.....	.....	148
Mississippi	3600	3000	.....	2700	.....	.....	.....	.....	2700	3000	3600	.....	144[4]
Missouri	2400	.....	.....	.....	.....	1800	.....	.....	.....	3600	.....	.....	20
Montana	5000	4500	4200	3000	2400	.....	.....	.....	.....	2400	.....	2400	131
Nebraska	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nevada	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire	3000	.....	.....	2000	3000	.....	.....	.....	.....	2400	.....	.....	33
New Jersey	4000	3600	3000	.....	3600	3000	3000	.....	3500	3000	.....	2500	320
New Mexico	3000	.....	2400	.....	2400	.....	.....	.....	.....	.....	.....	.....	13
New York	8000	6000	4000	5500	5000	4000	4000	.....	.....	4000	3500	.....	922
North Carolina	5000	3000	.....	4000	.....	2500	3200	.....	.....	3000	3250	.....	345
North Dakota	1200	.....	.....	.....	.....	.....	.....	.....	.....	3000	.....	.....	12
Ohio	6000	4000	3300	3000	4000	.....	3600	.....	.....	3000	.....	3000	198
Oklahoma	3600	2400	.....	1800	2000	1800	.....	.....	.....	3000	.....	.....	146
Oregon	4000	.....	.....	3000	.....	1800	1800	.....	.....	2400	1800	.....	17
Pennsylvania	10000	6500	4000	4000	6000	4000	4000	.....	.....	4000	3500	3500	2682
Rhode Island	3500	.....	4000	.....	.....	.....	3000	.....	.....	3000	.....	.....	48
South Carolina	3250	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	236
South Dakota	2000	1200	.....	.....	.....	.....	.....	.....	.....	3000	.....	.....	21
Tennessee	3500	.....	.....	2100	.....	3000	3000	.....	3000	3000	.....	.....	72
Texas	3000	2400	.....	2100	2750	2400	3000	.....	3000	4800	.....	.....	98
Utah	4000	.....	.....	.....	.....	.....	.....	.....	.....	2400	.....	.....	21
Vermont	3500	.....	.....	3000	.....	.....	2000	.....	.....	2500	2400	2400	70
Virginia	4200	3600	.....	.....	3500	2750	2500	.....	.....	3600	3500	.....	64
Washington	5000	3600	.....	3000	.....	.....	.....	.....	.....	3000	.....	.....	34
West Virginia	4800	.....	2700	.....	2400	2400	1800	.....	3000	3600	.....	.....	38
Wisconsin	6000	.....	3000	3250	4000	3000	2500	2000	.....	3600	.....	.....	94
Wyoming	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[1] Information supplied by Dr. C. St. Clair Drake, State Health Officer of Illinois.
[2] In thousands. [3] Associate Commissioner of Health paid by private organization, $6500.
[4] Supplied in part by other branches of State government including University. [5] 1920.

2. At present, salaries for public health officers range from about $2,000 per year to $10,000 per year. Certain private agencies and industrial organizations pay even more to health officers who carry very large responsibilities. It is becoming very difficult to secure a man having practical experience for less than $3,000 a year for health work of any kind.

3. The associations of health officers should give direction to the movement which has already gained tremendous momentum, by keeping the public informed regarding achievements in the prevention and control of disease, by interesting in special training those medical students, medical interns, and other persons who can be used in the work, and by giving guidance and support to institutions which are offering creditable courses in public health.

WORLD-WIDE WORK OF INTERNATIONAL HEALTH BOARD

AUSTRALIA

No better illustration of what Dr. Dowling has commented on in his article on Hookworm in this issue of the JOURNAL could be desired than this picture kindly lent by the International Health Board. Hookworm disease is noted for the physical and mental retardation which it causes. The picture, taken in Australia by representatives of the Board, compares the physical development of two boys of the same age. The one on the left is free from infection and the other is heavily infected with Hookworm disease. Note the typical facial expression of the infected boy.

INFLUENZA-PNEUMONIA AS INFLUENCED BY DISH-WASHING IN 370 PUBLIC INSTITUTIONS

(Concluded)

LIEUT. COLONEL JAMES G. CUMMING, M. C., U. S. ARMY,
Washington, D. C.

This author places greatest emphasis on blocking the major avenue of saliva-borne disease distribution, which he says can be done effectively by the use of boiling water in dishwashing. He figures that the influenza-pneumonia mortality in institutions using boiling water was only half that of similar institutions with handwashed dishes.

IN a former article[1] it was reported that, among an institutional population of 252184 the influenza case rate for that group eating from machine-washed dishes was 108 per 1,000 inmates, while for the one eating from hand-washed dishes the rate was 324 per 1,000 inmates. On the basis of these rates for the two groups, and a consideration of the relative importance of the several avenues of contagion distribution, it appears, from the following consideration of the theory of case and source elimination that an epidemic can be either effectively controlled or, even prevented, by blocking the major avenue of transmission.

THEORY OF CASE AND SOURCE ELIMINATION AS A CONTROL MEASURE

We argue, first, that by blocking the major avenue of transmission, the greater percentage of cases, convalescents and carriers is eliminated, thereby reducing the number of sources of infection and their resultant secondary cases; and second, that by completely closing the major avenue of transmission, there is a marked reduction in the inanimate object contamination and the resultant hand to mouth infections, i. e., secondary cases. In this connection, it should be borne in mind that when the major avenue is closed, these secondary cases become the sources of further distribution only through the minor avenues of distribution, and since the minor avenues of distribution—i. e., hand to mouth—account for only a small percentage of infections, an epidemic may be brought under control in proportion to the thoroughness with which the major avenue of transmission is blocked.

The influenza rate per 1,000 for the protected group which ate from machine-washed dishes, is one-third the rate for the unprotected group which ate from hand-washed dishes. Let us first assume that none of the transmissions in the protected group was through eating utensils. Having assumed that the eating utensil is eliminated as an avenue of distribution, in this group there remains only hand to mouth transmission, through hands contaminated by inanimate objects, such as doorknobs, backs of chairs, pencils, etc., and by direct contact.

If in this protected group the rate of infection—108 per 1,000—results solely from hand contamination, the same rate of infection through the same route of distribution must be equally applicable to the unprotected group since in the large institutional groups under consideration, the law of averages equalizes any other factors influencing distribution.

1. Cumming: Influenza-Pneumonia as Influenced by Dishwashing in 370 Public Institutions. A. J. P. H., Nov., 1919.

his being so, and since the total rate of infection in the unprotected group was 24 per 1,000, then by subtracting the rate of the protected group—which comprises only hand to mouth distribution—from that of the unprotected group, the remainder is the rate of infection due wholly to distribution through contaminated eating utensils. Hence the rate of infection through eating utensils is 216 per 1,000 inmates in the unprotected group or, in other words, at least 66 per cent of the transmission is through eating utensils.

Perhaps we should be satisfied with this proof by which it is shown that 66 per cent of the cases could have been prevented by the use of scalded dishes, but on further analysis it is found that the blocking of the major route accomplishes more than 66 per cent reduction in cases. For applying the idea of eliminating, as sources of infection, those cases, carriers, and convalescents which arise through the major avenue of transmission, we find that 66 per cent of the sources of infection as well as 66 per cent of the cases among the total in this group, could have been eliminated by eating utensil sterilization. This being so, 66 per cent of the remaining 33 per cent would automatically have been prevented because of the elimination of 66 per cent of the sources of infection. This then makes a total reduction of 88 per cent of the cases and of the sources of inanimate object contamination.

But here again apply the theory of the elimination of sources and the blocking of the major avenue of distribution to the remaining 11 per cent. If 88 per cent of the sources have been eliminated by the elimination of 88 per cent of the cases, convalescents and carriers, there is automatically eliminated 88 per cent of the remaining 11 per cent of total cases, or a reduction of the total 100 per cent of cases to 3.2 per cent of the total cases.

On this basis we have reduced the case rate in the unprotected group lower than in the protected group. But this reduction in the unprotected group is impossible unless a portion of the cases in the protected group had their origin through the major avenue. This is doubtless so, for, as our investigation of public eating places shows, machine-washing may not always mean sterilization, as occasionally the temperature of the water is not sufficiently high to have a sterilizing effect. Therefore, the use of only warm water in the machines of public institutions may occasionally occur.

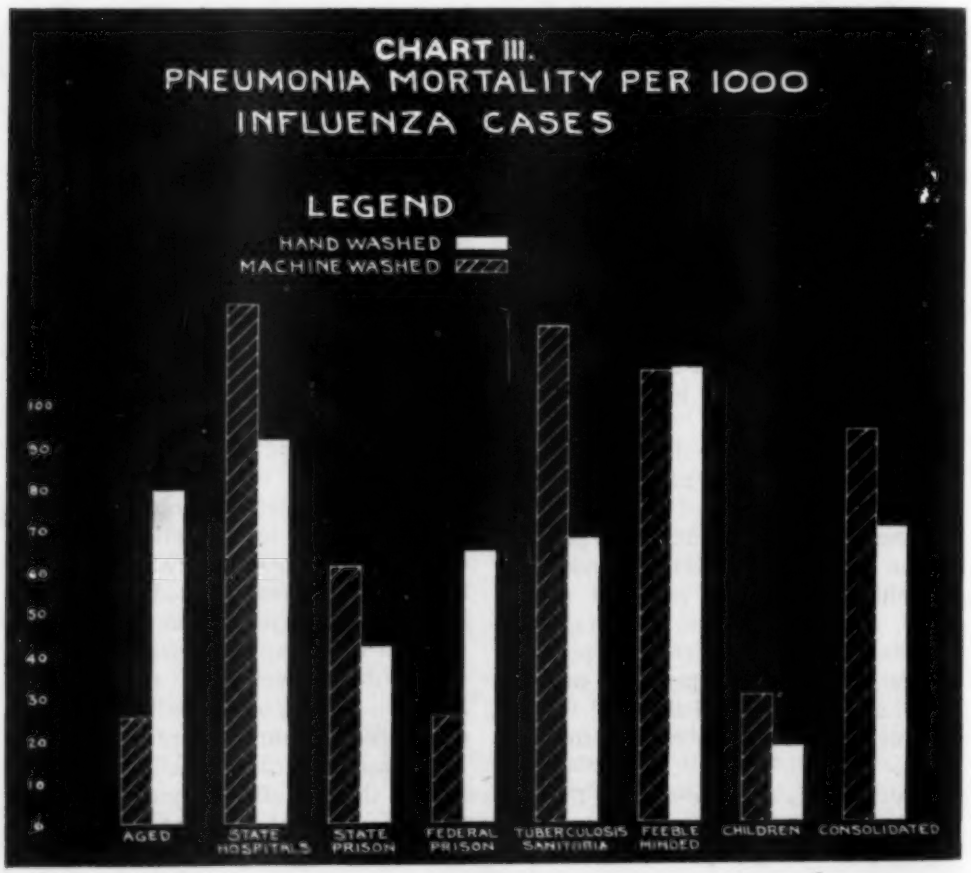
Consequently it is believed that in various public institutions where machine-washed dishes are used, a few cases may have had their origin through eating utensil contamination, and since it is reasonable to assume that in this protected group there were numerous transmissions through eating utensils, it is concluded that many of the cases in this group arising through hand to mouth infection, had their source of infection from those cases originally infected through eating utensil contamination, because the major avenue of transmission in the protected group was not completely closed. If in this protected group there actually had been no transmission through eating utensils, the cases and carriers which might have arisen from this source, would have been eliminated as sources of infection for those cases which were infected solely through hand contamination. There would, therefore, have been a reduction in the incidence equal to the extent of elimination of inanimate object contamination. This elimination of inanimate object contamination would be in proportion to the reduction in the number of cases having their origin in contaminated eating utensils, i. e., the major avenue of transmission. It is impossible to estimate to what extent this reduction of the incidence might be carried, on the basis of the total elimination of sources of infection arising from cases and carriers who become infected through the major avenue of transmission, i. e., eating utensil contamination.

It is sufficient to say that the complete closing of this major avenue of transmission would have eliminated the secondary cases which became infected through this route, thereby enormously reducing inanimate object contamination. In addition to this, such secondary cases as had their origin through hand to mouth infection would not be sources of further spread through that major avenue—the eating utensil—but only through minor avenues, which are relatively of insignificant importance.

If, on this theoretical basis, the total cases would have been constantly reduced it is obvious that the universal application of blocking the major avenue of distribution would have eliminated the majority of cases and sources, thereby limiting the recent epidemic of influenza.

In the control of the saliva-borne infections our aim must be that of universally blocking the major avenue of distribution. This blocking process must apply to not only the sick, but also to the well, for during epidemic periods of these infections there is a high healthy carried rate. The universal application of the principle of eating utensil pasteurization is mass prevention in contrast to prevention by the isolation of the sick and presumably only a small percentage of carriers. From the experience of recent epidemics, both in the civil population and the Army, it is indicated that control by the isolation method is of but little value, and the suggestions here offered are with the view of presenting a new and perhaps a more successful line of attack.

The case fatility rates, Chart III, for influenza-pneumonia in institutional



populations increase in the following order: (1) normal children, (2) the aged, (3) middle-aged adults, (4) feeble-minded children. These rates and their order of sequence are what might be expected in view of the age distribution and the laboratory findings.

In normal children there is the lowest pneumonia carrier rate because of their youth; the aged come next, because in this class the majority of the pneumonia carriers have previously died; next is that group of middle-aged persons in which, owing to their age and the prolonged exposure incident thereto, there is an increased carrier rate; and finally, the class of feeble-minded children which, notwithstanding their youth, have rapidly become infected to a high degree through hand to mouth distribution, owing to their low standard of personal hygiene. The intelligence of the individual and the intelligence of the race determine to a large extent the carrier rate. This in turn determines the case fatality rate as well as the virus infection rate.

In the further discussion of this chart it should be borne in mind that we are considering two infections: influenza on the one hand, and pneumonia on the other, and only the case fatality rate and not the population mortality rate.

In considering the deaths resulting from the influenza epidemic, it should be recognized that these deaths do not result from the virus infections, but from those groups of potentially dangerous organisms — pneumococci and streptococci — which are chronically harbored in the mouth and tonsils. From the standpoint of the carrier state, the investigation has proved most instructive. Although the case rate in the group eating from machine-washed dishes comprises only 25 per cent of the total influenza cases, it will be noted in Chart III that 57 per cent of the total case fatalities of both groups occurred in this protected group. Although the influenza case rate was less in the protected group, in this group there were more pneumonia deaths per 1,000 influenza cases than in the unprotected group. In considering this case fatality rate there should be no confusion with the population mortality rate as shown in Chart IV, in which only 31 per cent of the total deaths occurred among those eating from machine-washed dishes.

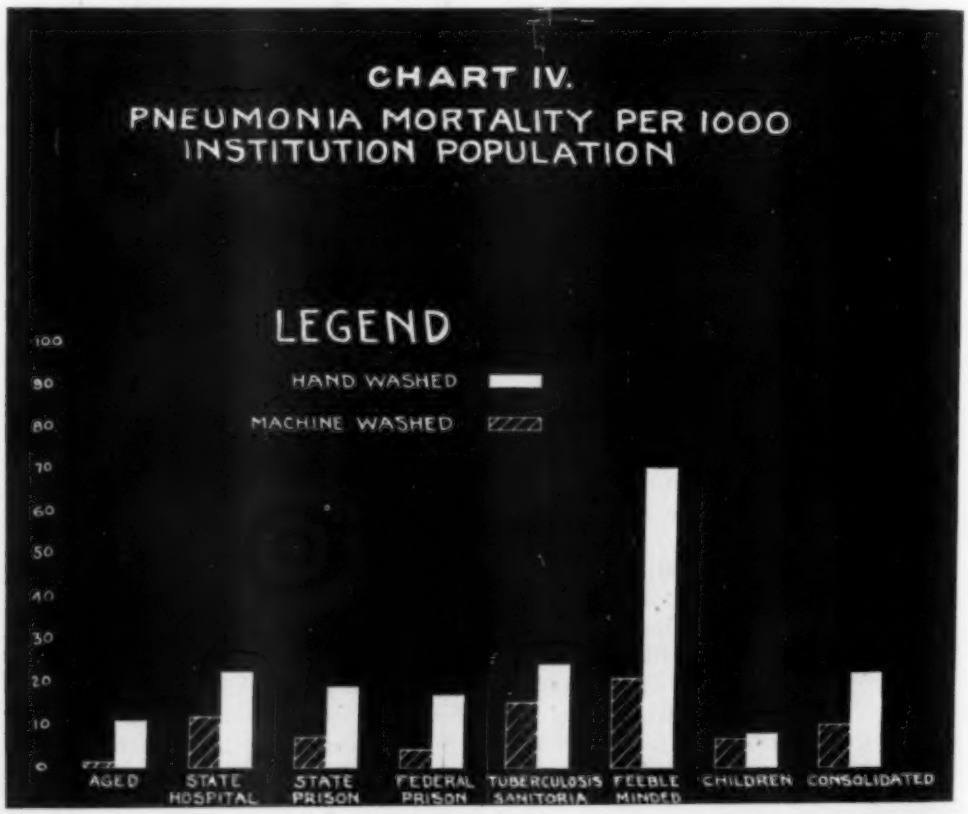
The influenza case rate in the protected group is low, the influenza case fatality rate resulting from pneumonia is greater in this group, while the population mortality rate is only 31 per cent of the total deaths of both groups.

Why should there be this excessive case fatality rate in that group which is presumably protected to a high degree against the acute virus infections and against the carrier state by reason of using machine-washed dishes? It is concluded that this group is protected because its incidence of influenza constituted only 25 per cent of the total institutional cases, and its group mortality rate only 31 per cent of the total institutional deaths. Obviously then, per 1,000 influenza cases of this group, more died from pneumonia than in that group in which there was no blocking of transmission through eating utensils. The former were protected against influenza, but died of pneumonia. There is then only one conclusion: that in the protected group, among those *few who became infected with influenza,* there was a higher percentage of carriers of pneumonia-producing organisms — pneumococcus and streptococcus—than in the unprotected group. But why should it appear that the influenza virus has a special predilection only for carriers in the protected group, while in the unprotected group non-carriers as well as carriers are attacked? There presents but one explanation; that the carriers of these potentially dangerous organisms have a special susceptibility to even small doses of the influenza virus, and although there is a special protection in the group eating from machine-washed dishes, yet in this group even the small doses of virus are sufficient to infect the carriers, but not the

non-carriers. On the other hand, in the unprotected group not only the carrier—for the carriers of both groups are equally susceptible—but also the less susceptible non-carrier becomes infected, owing to the massive doses of influenza virus, which he received through the interchange of contaminated dishes. Hence in the unprotected group, because of the greater incidence of influenza among non-carriers, there is a lower case fatality rate than in the protected group. From the foregoing, it would appear that a carrier is susceptible to a dose too dilute to infect a non-carrier—in short, it is demonstrated that the carrier is more susceptible to influenza virus infection than the non-carrier.

As further proof of this theory attention is called to the following consideration of the population mortality rates of these two groups:

If the carrier and non-carrier were equally susceptible to influenza, the ratio of influenza cases and the ratio of mortality per 1,000 inmates for the two groups would be the same. (See Chart IV.) But this is not so. For, while the ratio of influenza cases in the protected and the unprotected groups was 1 to 3, the ratio of pneumonia deaths per 1,000 inmates in these two groups was 1 to 1.2, showing one of two possibilities; either that the pneumonia carrier rate was higher in the protected group or that the carrier is the more susceptible to the virus infection. The first possibility is remote, and since there was a marked reduction in the influenza cases in this protected group, it is reasonable to assume that there would likewise be a reduction in pneumonia carriers. It might be argued that the main route of transmission of pneumonia is by the hand to



mouth route and that the method of washing dishes was not an influencing factor. But if this were so, the percentage of carriers would be the same in both groups and there would then be a sameness of ratios for the influenza case rates, and pneumonia. mortalities in the two groups. Since this is not so, there appears additional evidence that the carrier is more susceptible to the virus infections than the non-carrier.

Can it be possible that the pneumonia carrier rate determines the occurrence of virus epidemics?

In a former report[2] on measles-pneumonia we attempted to establish the principle that the carrier state predisposes to the virus infections (measles, scarlet fever and influenza) and that these in turn pave the way for the pneumonia secondary invaders. This idea was based on the finding of 36 per cent of all measles cases positive for hemolytic streptococci on entrance to the hospital; while among normal troops at that time there were only 6 per cent hemolytic streptococcus carriers. This view was further supported in a subsequent report[3] of the examination of 2,135 hospital patients, including cases of measles, scarlet fever and mumps, among whom it was found that 59 per cent were positive for hemolytic streptococci.

The epidemiologic study of the case and fatality rates in public institutions supports this view as to the increased prevalence of the virus infections among individuals who harbor this potentially dangerous group of pneumonia organisms.

In Chart IV there is presented the pneumonia mortality per 1,000 institutional population for the several classes of institutions; these are divided according to the method of dish-washing. The marked difference in the mortality rates for the two groups in all classes of institutions indicates the value of using dishes disinfected by machine washing.

The rate for the protected group is 10.4 per 1,000 population, and for the unprotected group 22.9 per 1,000. Only 31 per cent of the mortalities occurred in that group protected by the use of machine-washed dishes.

The mortality rates for the aged, and for normal children are the lowest. In this connection it may be stated that although the generally accepted opinion is, that the case rate as well as the mortality rate among children in civil communities was low, it is questionable whether or not this was true. It is thought error has occurred because case rates in influenza have been calculated on the mortality rates among the several age groups. Our figures, so far as children are concerned, do not support this method of case rate calculation for of all the institutional classes, none has as low a mortality rate as normal children, and this despite the fact that in public institutions children have the highest influenza case rate. The mortality rate among normal children is low, not because they have a low influenza rate, but because the percentage of pneumococcus and streptococcus carriers is small in this age group. This might be more strikingly apparent in civilian children if the exact case and mortality rates were known.

Our investigations show that among 160 children, six years old, no carriers of the hemolytic streptococcus were found, while among a like number of the adolescent age, the percentage of carriers of the hemolytic streptococcus was 1.2 per cent, while in adults there was a still further increase to 5 per cent. Granting that we accept the prevalence of the hemolytic streptococcus as an index as to the possibility of the occurrence of pneumonia as a complication of the virus infections, in these percentages we have an explanation of the case fatalities as well as of the population mortalities for the different age groups. In general, it may be said that the older an individual

2. Cumming, Spruit, and Lynch. The Pneumonias: Streptococcus and Pneumococcus Groups, Jour. A. M. A., April 13, 1918.

3. Cumming, Spruit, and Aten. Streptococcus Pneumonia: Journal Am. Med. Asso., March 8, 1919.

is — provided he is non-immune — the more liable he is not only to the virus infections, but also to pneumonia complications. This is due to the increasing carrier state as age advances and explains the exceedingly low mortality from the virus infections among children, the frequent death of the oldest child only, in the family group of children, and the high mortality from the complications of these infections among adults. The carrier rate in the group of aged is, of course low, because, as has been said, the majority of carriers have previously died.

CONCLUSIONS

1. The successful operation of the theory of case and source elimination depends upon the identification and the blocking of the major avenue of saliva-borne disease distribution. Inasmuch as this blocking prevents more than half the cases, it consequently eliminates an equal number of sources, and since by its continuous operation there is a cumulative effect in eliminating cases and sources for each successive human cycle of the infection we have in the universal application of this principle a means of eventually eradicating this group of infections.

2. Epidemiologic observations, in institutions, in the civil population, and in the Army, indicate that eating utensils are the major avenue of saliva-borne disease distribution.

3. This major avenue of distribution can be effectively blocked by the use of boiling water in the process of dish-washing.

4. Healthy adult carriers of the pneumonia-producing group of organisms are more susceptible than non-carriers to the virus infections.

5. The greater susceptibility of the pneumonia carrier, and the fact that this group of organisms is almost wholly responsible for the mortality of virus epidemics indicates that, as a public health measure, the prevention of pneumonia transmission is more important than of influenza transmission. Both these infections are saliva-borne so that control measures which apply to one apply likewise to the other.

6. In those institutions where machine-washed dishes were used the influenza-pneumonia mortality was 55 per cent less than in those where hand-washed dishes were used.

□

Coins as Possible Carriers of Disease.— In order to ascertain the possible risk of infection, tests were carried out to determine the viability on coins (copper and silver) of the commoner pathogenic organisms. Five were selected for the test—*B. influenzae*, a streptococcus, a pneumococcus, a staphylococcus and *B. typhosus*. The results of the tests indicate that these microörganisms have a short life under the conditions of the experiment. This may be due in part to the laboratory strains used not being as resistant to an adverse environment as are those which have not been cultured on artificial media for some time, and also to other factors inseparate from experimental work; but the chief factor is undoubtedly the bactericidal action of the metals used. These results support the views of other investigators that coins do not offer a suitable nidus for the propagation of bacteria, and can be regarded as a negligible factor in the spread of infectious disease.—*Medical Officer*, May 1, 1920, 178, *(D. G.)*

BACTERIA OF THE AIR IN AN AMUSEMENT HALL

I. Forest Huddleson and Thomas G. Hull,
(*Formerly First Lieutenants, Sanitary Corps, U. S. A.*)

In view of the controversies over the closing of theatres and halls during the influenza epidemic this paper is illuminating. Such places seem, even under good conditions, to be clearing houses for oral organisms. Contamination of the atmosphere in them apparently relates itself to local epidemics. Here is food for thought for health officers.

THE first studies upon the microflora of the air and their relation to the spreading of infectious disease were in greater part conducted under artificial conditions. A common method employed consisted in inoculating the nose or mouth with various organisms and then causing the individual to speak, cough or sneeze for a specified length of time.

Agar plates were exposed for various periods in different parts of a room to receive any organisms which might settle on them. Another method employed consisted in spraying organisms into the air of a room and exposing agar plates in a similar manner.

Flügge,[1] Hübener[2] and Gordan[3] were among the first to study the microflora of the air and to point out their importance as a means of spreading infection. Their experiments were usually conducted under artificial conditions. Winslow and Robinson[4] conducted a series of similar experiments under artificial conditions and concluded that aerial infection is a minor factor in the spread of infectious disease. Wood[5] has shown that pneumococci when sprayed into the air, may remain suspended therein for a number of hours if the ventilation of the room is good, but they become harmless in a very short time, especially if exposed to a strong light. Graham-Smith[6] examining the air of the House of Commons found no organisms which could be associated with specific diseases in man. Chapin[7] in summing up his chapter on "Air as a Means of Infection," says: "There may be pathogenic organisms actually present in the air, yet they may not be dangerous, either because they have wholly or partially lost their virulence, or because they are too few in number, or for some other unknown reason."

During the severe epidemic of respiratory diseases of 1917-8, among troops stationed in camp in this country, Beals, Zimmerman and Marlow[8] found the *Streptococcus hemolyticus* to be the predominating organisms in the respiratory organs of normal and diseased individuals. This organism was found present in from 20% to 86% of the men examined.

The experiments herein described were conducted for the purpose of determining the types of organisms actually existing in the air of a large amusement hall, and their relation to prevailing respiratory diseases. They were carried out in the "Festhalle," Coblenz, Germany, during the early days of American occupation. This building, which had been taken over by the Y. M. C. A., for welfare work, contained a large auditorium, holding about 2,000 men, in which entertainments and soldier shows were given, and which was filled to capacity every evening. Around three sides of the room was a balcony, not overhanging, but extending back over adjoining rooms. Ventilation was obtained by many small

windows, near the roof of the building, all wide open. By an order of the Commanding General, the size of the audience was limited to the seating capacity of the room, no patrons being allowed to stand. Thus it was possible to conduct the experiments under comparable conditions in different parts of the room and at different times.

During February, 1919, there existed in the Army of Occupation what amounted to an epidemic of severe "colds" with extremely bad coughs and sore throats. Pneumonia cases were numerous. The first experiment was conducted on February 23. By the first of March the epidemic had practically cleared up. The second experiment, conducted March 3, clearly shows the difference in air contamination in the building.

The medium used in the experiments was dextrose blood agar in Petri dishes. The open plates containing this medium were exposed in pairs in the four corners of the room and in the balcony, just above the height of a man standing—one plate horizontally and one plate vertically. In this way organisms being swept by air currents were caught, as well as those settling by gravity. The plates were slowly revolved on a stick. Three periods of time were used—one minute, five minutes and ten minutes.

In Table 1 are given the results of the first experiment on February 23. It will be seen that in one minute an average of 82 organisms settled on the plates, and in five minutes, 151 organisms. Several of the 10-minute plates in this experiment were accidentally contaminated just before exposure, so the results are not given. In picking colonies indiscriminately from the incubated plates four type IV pneumococci were found, and many hemolytic and non-hemolytic streptococci, with numerous staphylococci and gram negative and gram positive diplococci.

Results of exposing blood agar plates to air during the height of the epidemic.

TABLE I

Plate No.	Exposed 1 minute No. of colonies	Exposed 5 minutes No. of colonies
1 R. F.	72	276
2 R. F.	23	17
3 R. R.	20	300
4 R. R.	34	10
5 L. F.	360	396
6 L. F.	27	39
7 L. R.	30	300
8 L. R.	58	13
9 B.	76	88
10 B.	124	76
Average	82	151

Note: Odd numbers, horizontal exposure; even numbers, vertical exposure. R. F. right front of hall, R. R. right rear of hall, B, balcony.

Eight days later, (March 3), the experiment was repeated. The details of operation were identical in every particular—the same medium being used and the same methods. On the plates exposed one minute and five minutes the organisms found were extremely few in number. On the plates exposed ten minutes an average of 16 colonies was counted. Among these, molds and staphylococci predominated; no pneumococci were found; 16% of the total number of colonies present were streptococci, which showed partial but not complete hemolysis (alpha type).

This great reduction from 82 organisms in one minute to 16 organisms in 10 minutes, which settled on the plates directly corresponded to the falling off of the epidemic. In either case, however, a man sitting through a performance of one and a half to two hours would inhale enough pathogenic organisms to give him any respiratory disease which might prevail among those sitting about him, provided he did not possess some natural or acquired resistance.

The prevailing organism present in the respiratory passages of men admitted to the hospital at this time was *Streptococcus hemolyticus*.

SUMMARY

1. During the height of an epidemic of bad "colds" and coughs the air of an

amusement hall filled with soldiers was badly contaminated that an average of 82 organisms fell on blood agar plates exposed one minute. Among the organisms were pneumococci and numerous staphylococci.

2. Eight days later, after the epidemic had subsided, only an average of 16 colonies developed from the plates exposed under similar conditions but for a period of ten minutes. Sixteen per cent of these colonies were streptococci.

3. Excellent ventilation and prevention of overcrowding by limiting the size of the audience to the number of seats did not prevent enormous bacterial contamination of the air.

4. Any man susceptible to the prevailing respiratory diseases under such conditions could not help but contract those diseases by sitting through a performance of one and a half to two hours.

The authors wish to give credit to Dr. W. M. L. Coplin for suggesting these experiments and for his kindly interest in them.

REFERENCES

1. C. Flügge, "Ueber Luftinfection." *Ztschr, f. Hyg.*, 1897, Vol. 25, p. 179.

2. W. Hubener, "Ueber die Moglichkeit, der Wundinfection vom munde aud und ihre Verhutung durch Operationsuraken," *Ztschr, f. Hyg.*, 1898, Vol. 28, p. 348.

3. M. H. Gordan, Report on a bacterial test for estimating pollution of air. *Report of the Medical Officer*, 1902-3, 1904, p. 421.

4. C.-E. A. Winslow and E. A. Robinson, An investigation of the extent of bacterial pollution of the atmosphere by mouth spray. *Jour. Infect. Dis.*, 1910, Vol. 7, p. 17.

5. F. C. Wood, Viability of the pneumococcus after drying. *Jour. Expt. Med.*, 1905, Vol. 7, p. 592.

6. G. S. Graham-Smith. The microorganisms in the air of the House of Commons. *Jour of Hyg.*, 1903, Vol. 3, p. 498.

7. C. V. Chapin, Sources and Modes of Infection, 1912, p. 300.

8. L. S. Beals, B. F. Zimmerman and S. B. Marlow, Acute respiratory disease among troops with especial reference to empyema. *Jour. Infec. Dis.*, 1918, Vol. 23, p. 475.

MILLS-REINCKE PHENOMENON AND TYPHOID CONTROL BY VACCINE

HAROLD G. MCGEE,
Akron, Ohio.

Assuming typhoid to be an index of conditions favoring other causes of death, this author calls attention to the likelihood that anti-typhoid vaccination, by attacking typhoid alone, really masks sanitary conditions and may permit unnecessary deaths. Complete eradication of typhoid through vaccination would not affect the three other deaths suggested by the Mills-Reincke hypothesis.

That the substitution of a bacterially safe water supply for a polluted one results in a considerably greater reduction in deaths from all causes than can be accounted for by the reduction in deaths from typhoid fever alone, is the tenor of the Mills-Reincke phenomenon and Hazen's theorem. Recently, the writer

has met several public health officials who believe that this effect is due to coincident sanitary improvements of other kinds and that, consequently, the above conclusion is simply the result of malobservation. The significance of this attitude becomes apparent when considering the control of typhoid fever, as a health measure, by vaccination.

This paper offers some hitherto unpublished evidence tending to support the original proposition; and, assuming that its validity has not at least been disproved, questions the public health policy of eradication of typhoid fever by vaccination.

Alpena, Michigan, with a population of 12,706 by 1910 census, is located on Thunder Bay, an arm of Lake Huron, from which the public water supply is drawn. It is served by combined sewers, which discharge either into Thunder Bay River and thence into the bay, or directly into the Bay. The accompanying table and diagram indicate the typhoid fever and total death rates from 1900 to 1918, inclusive. During 1907-'08, the waterworks intake was moved from a point northeast of the mouth of the river to about 8,000 feet southwest thereof; and, during the summer of 1915, radical improvements were made in the means of sterilization of the supply.

During 1915, a careful study of the occurrence of the typhoid fever and of the water supply led to the conclusion that the latter was largely responsible for the former; improvements were recommended and acted upon, and a material drop followed. If it be granted that the change in intake location in 1908 resulted in a material deterioration in the quality of the supply, then the substitution of a polluted for a less polluted supply increased the typhoid deaths per 100,000 from an average of 31.7 to 67.7, a difference of 36 per year for the eight years prior and subsequent thereto; and at the same time and for the same periods, deaths from all causes increased from 1,370 to 1,520, a difference of 150, more than four times the increase due to typhoid alone. Since 1915, the drop in deaths from typhoid has averaged 55.2; in deaths from all causes, 320, nearly six times the decrease in typhoid. However, this latter period is rather short to be significant, particularly in view of the complication introduced by the extreme death rate rsulting from the influenza epidemic of 1918.

TABLE 1. GENERAL AND TYPHOID DEATH RATES AT ALPENA, MICHIGAN

Year	Estimated Mid-year Population	Deaths per 100,000 from Typhoid Fever	Deaths per 1000 from All Causes
1900	11,810	59.3	17.5
1901	11,901	...	13.9
1902	11,993	8.3	10.3
1903	12,084	24.8	14.2
1904	12,176	24.6	13.2
1905	12,267	24.5	10.8
1906	12,359	56.6	15.4
1907	12,450	24.1	14.6
Average for period, 1900-07		31.7	13.7
Maximum for period, year 1900		59.3	17.5
Minimum for period, year 1902		8.3	10.3
1908	12,542	71.8	17.7
1909	12,633	63.3	17.6
1910	12,724	31.4	15.1
1911	12,817	93.5	16.4
1912	12,908	53.9	14.3
1913	13,000	91.3	13.9
1914	13,091	68.9	14.0
1915	13,182	67.3	12.7
Average for period, 1908-15		67.7	15.2
Maximum for period		93.5	17.7
Minimum for period		31.4	12.7
1916	13,272	7.53	12.1
1917	13,364	22.5	11.9
1918	13,455	7.43	*16.8
Average for period, 1916-18		12.5	12.0

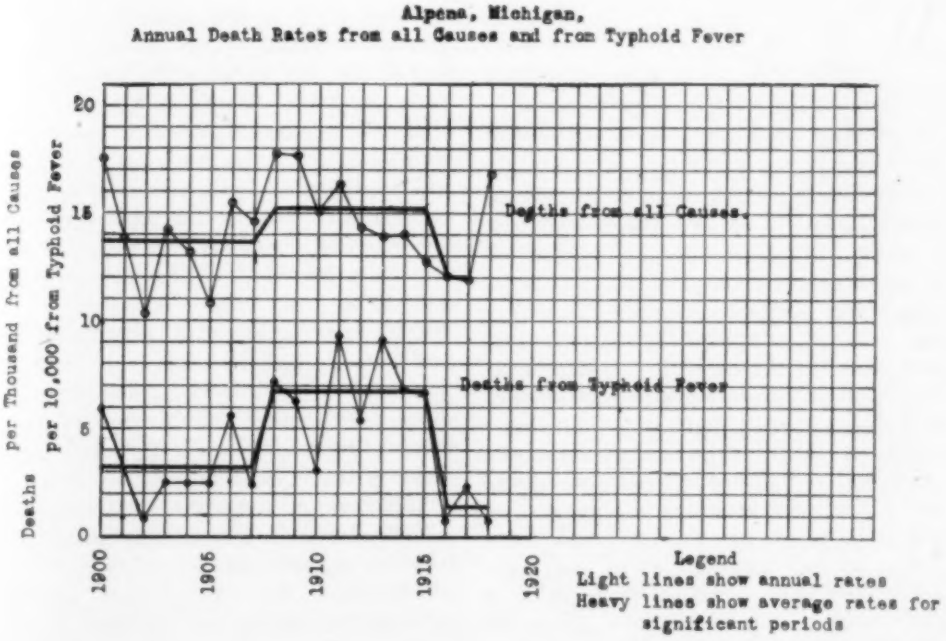
*Total deaths from all causes 1918 not significant because of influenza epidemic; not included in average for this reason.

However, unless it be assumed that, coincident with a supposed improvement in the water supply, the general application of the principles of hygiene and the effectiveness of the public health administration suffered a setback, it seems logical to conclude that the same circumstances which caused an increase in typhoid caused a considerably greater increase in deaths from all causes. In other words, this case seems to be evidence of the truth of Hazen's theorem by converse.

In public health administration, the presence of disease may be considered as symptomatic of sanitary disorder. In particular, the presence of typhoid fever may be considered a symptom of fecal infection of water or food. If Hazen's theorem is accepted, then such infection of a public water supply (and why not private water supplies and food as well?) will result in about three deaths from causes not ordinarily considered water-borne to each death from typhoid fever.

Under such circumstances, does not the eradication of typhoid fever by anti-typhoid vaccine tend to hide and consequently to continue the true disorder, fecal infection, and thereby degenerate into a mere treatment of symptoms? And would not complete eradication of the disease, if it could be effected thereby, perpetuate the loss of the three additional lives by the removal of our best index of polluted water?

This occasion is taken to acknowledge the assistance and encouragement given the writer in the above investigation by the State Sanitary Engineer and the Secretary of the State Board of Health; and the courtesy of the Michigan Department of Health in furnishing data accumulated since 1915.



Clinical, Etiological and Epidemiological Observations of Influenza.—The author considers the Pfeiffer bacillus to be the causative factor in influenza since he was able to isolate this organism from 60 cases without exception.—Schmidt, *Centralbl. f. Bact.*, 1919.

Experimental Typhoid.—Besiedha has shown that by the simple expedient of giving a rabbit a few cubic centimeters of ox-bile some hours before feeding it with typhoid bacilli renders the animal sensitive to that disease.—*The Lancet*, March 27, 1920.—*H. N. C.*

COORDINATION OF PUBLIC AND PRIVATE AGENCIES IN A STATE PROGRAM OF PUBLIC HEALTH NURSING

JESSIE L. MARRINER, R. N.,

Director, Bureau of Public Health Nursing,
Alabama State Board of Health

Read before the meeting of the National Conference of Social Work, at New Orleans, La., April 19-24, 1920.

Alabama has a State Program for Public Health Nursing. This service, stimulated by the war, has developed enormously everywhere. Most movements in this country are by independent agencies. Coördination is the urgent need. Miss Marriner outlines what Alabama is doing towards standardization and coöperation.

WHAT is public health nursing? Who can define it? Many have tried and each has interpreted the function in terms of his own need or the need of those for whose welfare he feels some responsibility. The private practising physician says it is paying nursing visits to the sick and aiding their recovery; the prevention of death or other serious consequences of illness. The health officer asserts that it is carrying out an educational program and measures for the control of communicable diseases, while some administrators of public school systems set up an interpretation which fits the need of the school child and the normal growth of education. The interpretations of managers of industrial plants are as varied and interesting as the personalities of the managers, and have about as much claim to uniformity. The executives of social service agencies claim the right to define the function of public health nursing in relation to their activities, because, they say, "We need the nurse."

Ask the public health nurse herself "What are you, and what do you do?" Her answer is, "I am the servant of all, trying as I am able, in whatever way I am permitted, to use the skill and knowledge I have acquired for the benefit of mankind." It is true that our leaders have made brave efforts at standardization of the various activities covered by the term public health nursing; that is efforts have been made to substitute knowledge and experience for ignorance and experiment in the administration of our special work, but thus far the utmost that has been achieved is a rather broad generalization which defines public health nursing as "any phase of social work dealing more or less directly with health problems or problems of health education in which the knowledge and skill of a thoroughly trained nurse renders the worker more efficient." (Quoted from memory from the *Public Health Nurse.*)

When we consider the wide range of possibilities included in this statement, both as regards the administrative side of the work, the service itself and the personnel available for carrying it forward, it is easy to understand the wide variation in standards and accomplishment, as well as the occasional disappointment, bitterness and misunderstanding which mar the rapid growth of this new expression of an aroused social consciousness.

Many successful attempts have been made to harmonize independent agencies in the local field, in the interest of

economy of administration and efficiency of service. These demonstrations although of the utmost significance in connection with our subject cannot be discussed within the limits of this paper.

A movement still more far-reaching is the inauguration within recent years of state programs of public health nursing. These it is hoped, will effect a coördination of public and private agencies within the state in harmony with the program. Our next inquiry then will be: What are state programs? On what basis of legal authority or moral obligation do they rest? How do they work to accomplish desired ends?

EXAMPLE OF STATE PROGRAM (ALABAMA).

1. A-B. We may define a state program as a statement of fundamental principles governing an activity which closely concerns the public welfare. It has legal authority, when voiced by a government agency upon which rests the responsibility for public welfare in a stated field. It has the authority of leadership when set forth by professional bodies, in said field, in such a way as to win the understanding and support of the general public.

C. An Act of the State Legislature confers upon county boards of revenue the power to appropriate funds for the maintenance of a public health nursing service, to be administered by county boards of health. This law is permissive rather than mandatory and may need at some future time to be adjusted to more advanced conditions. The form such social legislation will take may be, in a large measure, determined by the state program, and its enactment secured, by appealing to an enlightened public opinion.

2. The State Program for Public Health Nursing of the Alabama State Board of Health recognizes:

A. That public health nursing is a highly technical service rendered by graduate nurses in the interest of health education and health protection. It is rightfully a government responsibility and should be maintained at public expense.

B. As a public function it will be best administered by executives of general health agencies, but in the absence of such agencies may be successfully administered by any good executive who will familiarize himself with the fundamental principles involved.

C. When private organizations assume this function they should do so for the expressed purpose of revealing a need and demonstrating the efficiency of an instrument for meeting the need. When the demonstration has proceeded far enough to convince government officials of its value and the government is ready to assume control, private enterprise should be diverted to other fields.

D. When public and private agencies covering the same or closely allied lines of public health nursing operate within the same territory, they should be coördinated on an equal basis with relation to a fixed function, usually the more comprehensive and fundamental health function exercised by the government. Their place and the scope of their activities in a unified program, may be determined with relation to the same fixed figure.

3. The State Program Advocates:

A. The maintenance of a Bureau of Public Health Nursing as a Division of the State Board of Health, the purpose of which shall be:

a. To serve as the administrative medium for all of the public health nursing activities of the State Board of Health.

b. To promote the development of public health nursing throughout the state.

c. To encourage nurses to take advantage of increased facilities for education in public health nursing.

d. To select and recommend candidates for positions.

e. To set up desirable standards of work.

f. To encourage local executives to determine administrative policies only after consulting with state experts and investigating the published opinions of national leaders in this field as well as giving consideration to the personal capacity and major interest of staff nurses.

g. To conduct special studies of the public health nursing field in order to provide a basis for the construction of a local program and assist in the determination of policies of administration.

h. To conduct special efforts in public health nursing education.

B. That the relation of the State Bureau of Public Health Nursing to regional, county and municipal boards of health be one of voluntary non-authoritive supervision in its special field.

C. That it endeavor to create a demand for itself by being helpful; that the Bureau of Public Health Nursing should seek to become the agent in the State of the American Red Cross and the Anti-Tuberculosis League so far as the programs of these organizations include public health nursing; that the bureau offer the services of its personnel to both of these agencies in an effort to establish coöperatively the activities in which each is interested; that each be invited to place at the disposal of the Bureau the salary and expenses of a field nurse who would be responsible for work along these special lines.

That other agencies which are planning to undertake public health nursing work of limited scope be urged to delegate the supervision of such activities to the State Bureau under a coöperative agreement which should safeguard the standards and requirements of the initial agent, provide adequate funds for the prosecution of the enterprise and provide for adequate reporting of field activities to the agency which supplies the funds.

D. That bureaus which are or may be a part of the State Board of Health, engaged in the control of special health problems, such as child hygiene or V. D. control should, when contemplating the use of public health nurses as field agents for demonstration or strictly educational work, be urged, in the interest of a harmonious and economically sound program, to place these specialists upon the public health nursing staff of the State Bureau; the direction of the special work to come from the special bureau through the head of the nursing bureau, whose office it would be to harmonize such special activities with the general plan and cause it to be of the greatest possible value to local nurses in the field.

E. That specialists in infant welfare, school nursing, industrial nursing, and public health education be added to the Bureau staff as soon as state appropriations will permit, thus completing a well-rounded staff of experts whose qualifications for leadership will by no means be limited to special fields but will prove stimulating alike to the general county nurse in the most isolated rural sections and the staff nurse in the urban center which has achieved an adequate and complete generalized service.

F. Consideration by executives of the claims of specialized versus generalized public health nursing is advocated. These may be briefly stated as follows:

a, Generalization,—a service in which each staff nurse serves all classes of cases and covers all phases of work within a limited district favors economy of administration and more constructive family work. It is impracticable excepting where an adequate staff is employed, and the work localized in a district of reasonable extent to make a creditable showing in percentage of community served and results gained.

b. Specialization,—that is, emphasis upon one class of cases or phase of community service in health education favors sound building of a program by developing one phase of work at a time and adding block by block to the structure. It also favors in practice a very high grade of technique, and attracts the

organized support of lay people who feel a marked interest in special problems.

A one-sided development or limitation of the service to one or two health problems sometimes results from specialization; it frequently leads to duplication of visits and unwarranted expenditure of time and money.

c. In rural and small town work a general program with emphasis upon one or two special phases of work will lend itself most readily to expansion as public understanding and support increases; the ultimate goal being an adequate staff doing generalized nursing over a carefully districted area.

d. In urban communities where transportation is not a problem, there are fewer objections to specialization during the building period. The consideration is that when a service is started with one nurse in a city of some size, either the area of operation, or the scope of the activity must be limited. There are usually fewer objections to a limitation of the scope of activities, than there would be to showing undue favoritism towards some section of the city, especially when tax money supports the work. A completed program may be built up by adding specialties step by step until the entire field is covered and a sufficient number of nurses employed to graduate into generalization.

G. That agencies employing more than two public health nurses place them under the expert supervision of a specially trained public health nurse who will be able to maintain the service at a desirable standard by means of educative methods of supervision. This function is entirely distinct from the function of administration and is far removed from the office of a boss who gives orders which must be carried out. The technical supervisor holds a position of leadership rather than one of authority and in addition to familiarity with the psychology of education she must possess expert technical skill in order to be truly helpful.

4-A. The State Program may also endeavor to establish a basis of coöperation between agencies:

a. By setting forth and emphasizing an identity of interest. An authority in political economy, Gladden' has said. "Men cannot coöperate successfully for any purpose if the sole bond between them is self-interest." By coöperation we mean actually working together, operating as a unit, for example, as Faucett has said in his *Political Economy*, "Industry is said to be carried on upon the coöperative principle when capital and labor are merged into one and when the capital which is needed for the production and distribution of wealth is supplied by those who provide the required labor." It is doubtful if this example of "pure coöperation" can be duplicated in the realms of social service, but it should at least be possible to avoid furnishing a justification of the pleasantry that "coöperation is something that everybody demands of the other fellow."

An example of a real bond of common interest among health agencies is that of public health nursing in the programs of the American Red Cross, the Anti-Tuberculosis League, public and private community nursing associations and the activities of state, regional, county and municipal boards of health.

The agreement between the Gulf Division of the American Red Cross and the Alabama State Board of Health approaches the ideal of "pure coöperation," in that it recognizes an identity of interest and provides coöperatively for the development and supervision of work in this field by a single agent carrying a dual responsibility, that is, the Bureau of Public Health Nursing of the State Board of Health, which takes directions from and makes reports to both agencies.

Present conditions indicate that an extension of this agreement to include the community nursing activities of the Anti-

Tuberculosis League would be in line with the best interests of all.

b. Facts, figures and demonstrations may sometimes be used to convince agencies of the practicability of combining operations without merging the essentials of organization identity. Some of these essentials are a consciousness of being "different," of having an individuality and the satisfaction of having a place in the world and a work to do, which will furnish tangible grounds for an appeal for public support, thus assuring a continuance of the organization.

To illustrate this we might cite the instance of the combination of public and private city agencies for public health nursing which provides for generalized work in districts by an adequate staff of nurses under the supervision of an expert public health nurse, the identity of the several participating agencies being preserved by a system of records and reports which give accurate credit for funds furnished and all work done, as well as results secured, in the special fields of each.

Organizations in their group consciousness are characterized by more or less personal motives and before they can be induced to coöperate (work together), they must, like individuals, be assured of the normal rewards of work well done; in other words, public acknowledgment of their accomplishments and their right to life, liberty and the pursuit of their objective.

c. The probability of clashes of self-interest may be minimized by fostering the mutual respect of organizations for individual organization rights within certain well-defined limits. Welfare agencies, like individuals, need to learn to live together on the earth by achieving a form of self-government which shall be just and fair and in harmony with the ideals of democracy.

d. Apparent disparities of interest, such as that between preventive and remedial medicine may be disproved by showing that good preventive work but offers to remedial medicine a wider reach and a better grasp of its own field, and makes possible the practice of medicine upon ever higher planes of effectiveness. In every country in the world where preventive medicine has been undertaken, experience has proved that in its final analysis it means, more and earlier medical attention for all the people, in other words, an increased dollar reward for the practising physician, and a more even distribution of skilled nursing.

e. Aims and purposes which have held undisputed sway over public conscience for a long time may be reinterpreted in harmony with higher ideals of service or upon a broader foundation of educative effort, as when welfare agencies are led to see that the Christian principles expressed in the Gospel of St. Matthew applies to organizations as well as to persons. The body that would save its life shall lose it, and that one which would lose its life for the sake of the program which was inaugurated with the words, "Thy kingdom come," shall save not only its own life from failure, but bring to the world "Life more abundant."

B. The State Program for Public Health Nursing will endeavor further:

a. To become itself coördinated with other state programs for civic betterment, such as those for relief, correction, protection of children, public education and recreation, Americanization and reconstruction and vocational education for the handicapped.

This era is said to be one of organization; in some fields of human endeavor it has the appearance of organizations running wild, and contending against one another for supremacy.

In urban centers the very complexity and stress of social activities have made some form of coördination imperative, and some "rules of the game" have been automatically set up and followed, in the interest of self-preservation.

The extreme individualism of rural life makes spontaneous efforts towards combinations of any sort unlikely, while the very commendable zeal of those responsible for state and national welfare programs, is urging them continually "into the open country," "where the need is greatest." There they establish themselves, if at all, upon an independent basis and continue to work independently; each contending for the supremacy in its field and each clamoring for special legislation in the interest of its program.

Small wonder if the rural and small town dweller becomes confused and resentful of interference and assumes an attitude of hostility toward all "new-fangled nonsense." There are two fundamental reasons for this attitude on his part; they are first the demand of the rural mind for directness and simplicity in community enterprise, and second, a very natural antagonism to proposed social legislation which the rural citizen does not understand and for which he feels no need.

In view of these considerations the State Program for Public Health Nursing proposes to become itself coördinated with other welfare programs, with special reference to rural and small town activities in the interest of a simplified and harmonized plan of work, which will be acceptable to the people with whom it has to deal.

b. This comprehensive, final proposal of the State Program for Public Health Nursing is confronted by one major difficulty: With relation to what fixed function shall state welfare programs become coördinated with one another?

No function of government comprehensive enough to fill the need and specific enough to differentiate itself from the general group of state departments has become a recognized feature of state government.

c. It is therefore proposed that this need be brought to the attention of lawmakers and that the legislative body be asked to recognize the coördination of state welfare programs as a function of State government and to provide for it officially and financially. This function should be limited to rulings with regard to the function and relationship of organizations engaged in or wishing to undertake some form of welfare work within the state.

It would seem desirable that this office be filled by an expert organizer, although it would entail no administrative duties or powers. In a state which is largely rural this function of coördination might be assumed upon authorization by the legislature by the Attorney General's office, rulings with regard to doubtful or borderline functions being made only after consultation with all department heads and executives of interested organizations.

Public and private agencies having achieved a state program by means of which they hope to influence human conduct and race progress would then submit their programs to the designated state official and ask for a ruling on the question, in case of doubt as to which of the administrative departments of the government its proposed function is most closely related.

5A. Results:

a. The results to be hoped for from this experiment, the working details of which it would be impossible to forecast, include the possibility of a unified program for the upbuilding of rural life; a program which shall coördinate local public health nursing forces on an equal basis with relation to the fixed function of public health administration and further coördinate state welfare programs of every creed and color, with relation to some comprehensive fixed plane of human service, yet to be determined and given concrete expression.

b. A more economical administration of work in all lines both as to expenditure of effort and funds, should become possible as a result of the elimination

of non-essentials, duplication and mutual distrust.

c. The state programs individually and collectively should meet with increased responsiveness on the part of the public as a result of this effort at unity of action, and a more open-minded popular consideration be assured to proposed social legislation which is being advocated by the state program.

The above example of a State Program for Public Health Nursing has been outlined with special reference to conditions in one state and may serve only as a suggestion of how such a program may be built up within each state upon a basis provided by the state government. Where the health function has not yet been developed as a part of the government some private agency may temporarily assume the leadership in this field. When this is done, the surest criterion of usefulness of the private agency will be the promptness with which a government agency for health protection will be set up and put into operation, as a result of stimulation of public interest in health, and a sense of responsibility for its conservation.

The most striking example of the abrogation of self-interest to the public welfare will be furnished by that agency when it graciously accords the position of leadership to the government function which it has helped to create, and itself assumes the position of follower, supporter and advocate at the bar of public opinion.

NEW FORM OF JET DRINKING FOUNTAIN

Everyone who has had occasion to follow the development of the "bubble" drinking fountain, from the early form of Newcomb to those in use today, has realized that there are some difficulties in devising a fountain for public places which may not lend itself to the carrying of infection. The introduction of the oblique jet has solved most of the problems. The form of fountain here represented has been devised by C. M. Siever, M. D., Ph. D., in charge of the Department of Student Health, Kansas State Agricultural College. It has been on trial in the main building of the college for the past few months and has given excellent satisfaction. The small streams act as an automatic guard to keep the mouth away from the metal parts. In addition to the vertical streams, there are small ones directed across the fountain at the base of the others, so that the head of the fountain is continually washed.

SOCIOLOGICAL ASPECT OF HOOKWORM DISEASE

OSCAR DOWLING, M. D.,
President of the Louisiana State Board of Health
New Orleans, La.

Read before Sociological Section, American Public Health Association, at New Orleans, La., October 30, 1919.

Dr. Dowling finds a need so urgent for funds for fighting hookworm that he advocates using some of the school allotments which even now are inadequate. The economic waste is evident of trying to educate there defective children. More important than economic losses, however, are the lowered ethical standards incident to hookworm disease conditions.

HOOKWORM as a disease has a very ancient history. It is quite likely that certain passages in the Ebers papyrus refer to it, this record antedating Christ's birth by 1,550 years. The disease was probably recognized in Brazil about the middle of the 17th century. The cause, however, was not actually known until the discovery of the European species of the parasite by Dubini, an Italian, in 1843. It was then recognized as the etiological factor in Egyptian chlorosis. In 1880, it caused a high death rate among the workers in the St. Gothard Tunnel and was spread by these men throughout southern Europe and Italy.

Hookworm disease was probably first introduced into this part of the Western Hemisphere by African slaves brought to Porto Rico in 1760. It prevails extensively in the United States; but because of the mild climate and other conditions, the highest percentage of infection is found in the South. As has been pointed out by Stiles, the greatest prevalence is among the mountaineer dwellers of the Southern Appalachians and the Sandy regions along the Atlantic and Gulf Coasts. Between 1910-1913, more than 415,000 children in 413 counties of the Southern States were examined. The reports revealed 43% of them infected. Of 700,000 persons of all ages for the same localities 35% were found to harbor the parasites. In Louisiana the percentage of the infection depends on the locality; one parish has an average of only 15-16% based on about 3,000 examinations. In Camp Nichols in 1917, 9% of the men examined were found infected. In a neighboring state there are said to be counties in which 75% of the population have the disease; in Louisiana six years ago there were some with an estimated percentage of 50.

The conditions which exist in some of the remote rural districts are exceptionally favorable to the spread of the disease. Sanitary conveniences are unknown or of the most primitive type. At the school both infected and non-infected children use the same retiring places. The rains come and the entire adjoining areas are infected with hookworm larvæ which await the first opportunity to enter the skin of the bare-footed child—it may be the bare-footed man or woman. "Ground itch" follows and as the process is repeated, the person becomes heavily infected. Marbles and other school games may be responsible for ground itch on the hands or food may be handled without thorough washing of hands and the hookworm is saved much trouble in reaching its normal habitat, the intestinal tract.

This disease is not confined to the ru-

ral districts. In many of the smaller towns and villages by far too large a ratio of the people are infected. In fact, where no sanitary measures are complied with or enforced, or where there is no sewerage systems or sanitary privies hookworm is almost sure to exist. In the larger modern-built cities there are probably no cases reported or even suspected, but at least the chances of infection are far less than in the rural districts.

The infection is in most instances so insidiously acquired by the unsuspecting victim that he and the members of his family, who probably are likewise infected, do not know just when the effects of the disease began to manifest themselves. In the course of a few summers, however, a once healthy family has become pale and puny; a once industrious family has become languid and backward in its work; a once prosperous family has fallen into debt; a once proud family owning valuable property has been reduced to poverty by an easily curable and easily preventable disease. The children once bright and well advanced in their school classes begin to lose their zeal and their mental alertness when gradually robbed of their vitality. They fall behind in the struggle with their healthier classmates, and finally discouraged, give up school work in despair.

Hookworm districts are always far below the average in every respect. Now and then there is a wealthy farmer, but the majority of the residents are barely self-sustaining and it is a usual condition of affairs to find them poverty stricken. Education is neglected, both sexes are poorly clad, listless and with pallid skin and stunted body, they drag out their existence. They are people who in the struggle for existence have lost their grip; human refuse which is the progenitor of more wreckage.

Such individuals cease to be a social asset; they become a social liability. This is a phase that should be emphasized.

That the disease has an economical bearing upon the progress and well-being of the body politic is very evident. If in any country or in any section of a country a portion of the people are below the standard physically they add to the economic burden of the whole. In such ratio as they are inefficient they are an economic loss; in such ratio as they are physically unfit, they are a liability. Dr. Ferrell cites the case of the Continental Coal Corporation of Pineville, Kentucky, whose miners were infected to the extent of 65%. When measures for treatment and for prevention of soil pollution had been instituted the same body of men accomplished 33% more work than was possible the previous year. Dr. Rose, as quoted by Dr. Ferrell, states that a physically sound coffee-picker in Porto Rico picks from 500 to 600 measures of coffee per day, but that the infected man can pick only 100 to 250 per day. Of 300 laborers in a cocoa plantation in Ecuador anemia had so reduced their efficiency that they could only work one-third of a day. The manager of a large British Guiana Sugar Estate reports that "treatment for hookworm had doubled the working power of the gangs." A mine in California claims to lose $20,000 a year by having "to carry on its payroll men sufficient to replace those unable to work because of hookworm anemia."

It is acknowledged that the labor of the southern mills is inefficient because so large a number are afflicted with uncinariasis.

On a basis of investigations which have been in effect in different sections of the South since 1910, it is estimated that there is an economic waste in the Southern States, due to hookworm infection, of between $250,000,000 and $500,000,000 annually.

It can be readily understood that physical deterioration and physical disability lessen tremendously the working capacity of those affected. It appears, likewise, that the class of people habitually

ill become more and more helpless as working units. This condition constitutes a vicious circle. Physical degeneration produces poverty and poverty in turn creates conditions favorable to the spread of the disease. However, in passing, I might add that hookworm disease is not confined to the poverty stricken portion of the population; its prevalence among the better classes is illustrated by the work of Gage and Bass, who found 25% of hookworm infection among 315 university students. Of 259 students, not residents of New Orleans, 30.1% were found infected. Infection with other intestinal parasites brought the general average up to about 30%, which is remarkably high for people of this standing.

An important phase of the economic problem is the effect on children. A child with a stunted body and low vitality does not, cannot accept advantages offered by the schools. School and college records show that infected students even though not apparently ill, average lower in their studies than those free from infection. To quote again from Dr. Ferrell, "In a woman's college the average standing of 56 girls found infected was 77.75%, whereas 56 other girls in the same institution averaged 89.28%. In an academy 25 infected men and boys averaged 64%. A non-infected group 85%." If among students of colleges and other institutions for higher education the difference is so marked, it must be even more so among the children of the lower grades.

An examination of the pupils of two schools in Rapides Parish—one situated in a good-sized town, the other in a rural neighborhood—has just been made. A comparison shows the children of the town school on the average in much the better physical condition. For example, of the 74 of the country children examined, 35 gave evidence of malnutrition and 34 of anemia; 15, about 20%, had intestinal parasites and 47 of the 74 were found infected with malaria. Not one of the 74 had been vaccinated. Of the 448 in the town school, 10 showed malnutrition, 84 anemia, 145 had been vaccinated. As the examinations for intestinal parasites are not yet complete, we can not make a comparison, neither for malaria. One of the deplorable things revealed is the large number in both who give a history of smallpox, a serious arraignment of our knowledge of how this may be prevented.

There is a tremendous waste involved in maintaining schools, the advantages of which are not utilized by those for whom they are planned. A child who is too listless or anemic to become interested is a burden the same as his inefficient father. It would be far better to expend for examination, treatment if necessary, a portion of the school funds than to maintain schools which are an economic loss. I am not unaware that the schools everywhere are inadequately financed, but even so, their usefulness is limited if the children are unable to respond to the opportunities provided.

Without a healthy body, the best educational system must become illusory, but not only must the child be healthier but he must be kept so. No plan of campaign can have the slightest chance of success which does not take the instruction of the fundamentals of sanitation and hygiene into consideration.

The social importance of any disease which lowers the individual intellectually is almost beyond comparison as the infected children of infected parents today become the stunted, indifferent, mentally deficient, and physically inefficient adults of tomorrow, and so on ad infinitum. The eradication of hookworm is imperative. Not only for our present and future advantage, but from the very humane standpoint of alleviating misery is this a crying need of the rural districts of the Southern States and other portions of the country. To illustrate the improvement in normal and physical

stamina, as related by a person who had no particular knowledge of the hookworm disease, an incident is pertinent. A family in a certain town of North Carolina, had for many years the reputation of being the most worthless, shiftless, and "no account" members of the community. It occurred to a physician of the town to try the effects of a course of hookworm treatment on this family, apparently, partly perhaps a matter of experiment, partly also from humane reasons. The results were all that could be desired. Within a year or two, all signs of shiftlessness had vanished, the parents and children had been transformed into worthy, industrious and self-respecting people, had acquired property, and had achieved a very creditable position among their fellow citizens.

May I again repeat, the economic loss from lowered vitality and lessened working capacity, is of infinitely less importance than the effect on the lowered ethical standards which follow. A nation may make up for an economic loss by one means or another, and although we may not accept the philosophy of the gentle Oliver Goldsmith, I think we can accept as true:

"Ill fares the land, to hastening ills a prey,
Where wealth accumulates, and *men* decay."

□

Vaccine Treatment of Diphtheria Carriers.—In spite of our rather complete knowledge of how to prevent and cure diphtheria the lack of a dependable method of rendering diphtheria carriers non-infectious forms a lementably weak spot in the cordon of control which is gradually being thrown around this disease. Medical science has been ingenious in devising new and extraordinary treatments, but much disappointment has followed the use of all of these.

To the author it appeared that investigation along the line of symbiosis and saprophytism might lead to definite results. Had it been discovered that there was some organism constantly associated with the diphtheria bacillus in the throats of carriers, it was intended to employ a vaccine against the supposed abetting organism. Failing to find such a symbion the idea appealed to the author of using a vaccine of the offending organism itself.

The vaccine used was made in the usual way and was not autogenous. It was tried on a series of 50 cases, male and female of various ages, who had been carriers for from three to 20 weeks. Thirty-nine were given one or two doses, the rest from three to eight. In most cases the dosage was from 10 million to 30 million, although two patients were given 200 million each.

All cases were cleared up, 37 in one week, including 19 during the first day. Seven more were negative in a fortnight.

Fully one-fourth of the patients were observed for from eight to 27 days without manifesting renewed "positivity" in spite of the fact that they remained in contact with other infected persons. The author states that no untoward effects were noted on the vaccinated patients. Pulse rates were moderately increased for a few hours, the respiratory rate was mostly unaffected and pyrexia or local pain was exceptional—J. L. Brownlie, *London Lancet*, March 27, 1920. (*H. N. C.*)

✣

"Commonwealth" Influenza Vaccine.—One of the important measures employed in the control of influenza in Australia was the use of vaccine. The vaccine employed was one compounded from different strains of the several organisms associated with influenza, and for convenience termed "Commonwealth vaccine." The official report of the Australian Director of Quarantine describes its composition, preparation and method of employment. The ratio of deaths in the inoculated and uninoculated groups is given as five to 240. Some of this advantage must of course be attributed to the earlier hospitalization of the inoculated.—*Medical Officer*, March 13, 1920. (*H. N. C.*)

AN EPIDEMIC OF PNEUMONIC PLAGUE

W. H. KELLOGG, M. D.,

Secretary, California State Board of Health, Sacramento, Cal.

Read before Section of Public Health Administration, American Public Health Association, at New Orleans, October 28, 1919.

Dr. Kellogg calls on health authorities to wake from their apathy with reference to plague in California, and instead of restrictive measures to adopt an aggressive warfare. He points out that there is real danger to the country and urges adequate appropriations to exterminate the animal disease carriers while this may be done with certainty.

THE occurrence of a small epidemic of pneumonic plague in Oakland during the latter part of August and the first part of September, 1919, serves to remind us that the problem not only is with us still, but that it must be reckoned with in the future. This outbreak is of considerable interest, since it is the first instance of an epidemic of pneumonic plague on the western hemisphere. The great epidemic of Manchuria in 1911 is still fresh in our minds, and the work of Strong and Teague will be later referred to in a discussion of the possibilities of such a visitation in this country. In the report of the State Board of Health for the biennial period ending June 30, 1918, the writer made the following statement:

BUBONIC PLAGUE AND SQUIRREL ERADICATION

"The continued existence of bubonic plague among ground squirrels of California, after ten years of work for their extermination, should be a matter of general concern and should prompt us to redouble our efforts to eradicate them. California is definitely on the map as one of the endemic foci of this disease, others being Arabia, Manchuria and Thibet.

The work of squirrel eradication is being carried on by the United States Public Health Service in coöperation with the State Board of Health, and the amount of money being expended in the work averages about $60,000 per year, less than half of which is contributed by the state through funds appropriated to the State Board of Health. The work is carried on by intensive poisoning operations in those localities shown to be plague infected. This is determined by sending hunters over the area under investigation, examining in the laboratory squirrels shot, and concentrating poisoning operations in the places found to be infected. This method is made necessary by reason of the lack of funds to carry on more extensive work. In November, 1917, the Service surrendered charge of eradicative work in Merced, Stanislaus, San Benito and Monterey counties to the State Horticultural Commission, and has since confined its operations to the counties of Contra Costa, Alameda and San Mateo. Plague-infected squirrels were found in the latter group of counties which surround the bay of San Francisco, on which is located the city of San Francisco, which was the scene of a human plague epidemic in 1907.

Until plague-infected ground squirrels are entirely eradicated from California we shall always have a sword of Damo-

cles hanging over our heads. So long as infection persists among the ground squirrels, the possibility of an extension of the disease to the rats of the cities, and consequently to the human population, will exist. It may be one year, it may be five years, or it may be 20 years, before this lighting up of the virulence of the infection will occur, but we can surmise from the world history of plague and from its known tendency to slumber in endemic foci, such as we have in the vicinity of San Francisco Bay, that this will happen some time. We have now had a fair trial of the present method, extending over ten years, which is to spend just enough money to keep the disease in check, but not enough to exterminate it. The only rational plan is to proceed vigorously and to prosecute the work at such a rate that an entire ten years' allotment of funds is used up in a year or two. A reasonable basis would require an outlay of not less than $250,000 per year, with the expectation that two years would finish the work."

HISTORICAL.

Plague is primarily a disease of rodents, principally rats, and in some parts of the world of native animals, such as the tarbagan in Manchuria, the marmot in Arabia, and the ground squirrel in California. It persists endemically among these animals, occasionally extending to the human population, usually by way of an epizoötic among the rats, but sometimes by direct contact of humans with the wild animal harboring the infection. Whether the excursion of the disease from tarbagan or squirrel to the rat, then to the human, is a matter of chance, or whether it depends upon some temporary exaltation of virulence of the bacillus of plague is not known. The time interval between these human outbreaks is sometimes very long. It is believed that the disease lay dormant among the marmots of the west coast of Arabia during the many decades that elapsed between its disappearance from Europe and the beginning of the last pandemic in the early nineties.

Plague probably entered the United States in 1899, as the first recorded case on this continent was discovered in Chinatown, San Francisco, in March, 1900.* It had already appeared at the Hawaiian Islands on its westward march and was undoubtedly introduced into San Francisco by plague-infected rats from the Orient.

In August, 1908, the first evidence was secured of the extension of the infection to the ground squirrels of California, the supposition being that the point of contact was in the vicinity of the grain warehouses of Port Costa. Since that time the State Board of Health and the United States Public Health Service have jointly carried on a campaign of extermination and a systematic examination for infected animals with what funds were available for that purpose. Since 1908 sporadic human cases have occurred as follows, one at each of the places named:

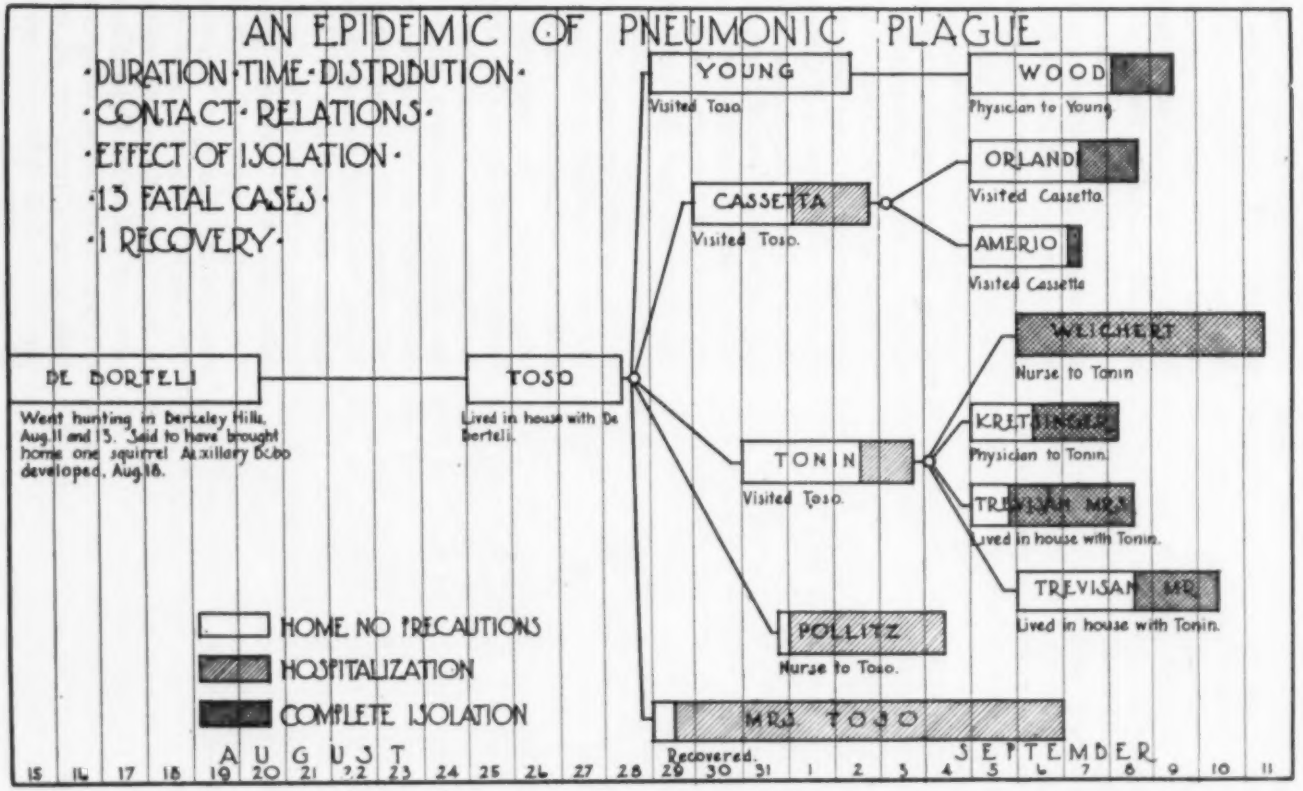
Los Angeles	August 11, 1908
Alameda County (rural)	September 24, 1909
Santa Clara County	August 31, 1910
Oakland	August 9, 1911
San Joaquin County	September 18, 1911
San Benito County	June 4, 1913
Contra Costa County	July 13, 1915

Following the apparent extermination of plague among the rats of San Francisco and Oakland, as a result of the work of those communities under the direction of the United States Public Health Service during the epidemic of 1907 and 1908, the usual feeling of security supervened, resulting in the complete cessation of rat exterminative measures in those communities.

PRESENT EPIDEMIC—(See Chart)

On August 15th, a man named Di Bortoli, residing at 960 Forty-fifth street, Oakland, was taken ill. His physician was called who found him with a temperature of 101.5°, a pain in his right side, with what he considered to be a congestion of the lower lobe of the right

*Kellogg, Journal A. M. A., May 19, 1900.


AN EPIDEMIC OF PNEUMONIC PLAGUE
·DURATION·TIME·DISTRIBUTION·
·CONTACT·RELATIONS·
·EFFECT OF ISOLATION·
·13 FATAL CASES·
·1 RECOVERY·
DE BORTELI
Went hunting in Berkeley Hills, Aug.11 and 13. Said to have brought home one squirrel. Axillary Bubo developed, Aug.18.
TOSO
Lived in house with De Bortelli.
YOUNG
Visited Toso.
WOOD
Physician to Young.
CASSETTA
Visited Toso.
ORLANDI
Visited Cassetta.
AMERIO
Visited Cassetta.
WEICHERT
Nurse to Tonin.
KREITZINGER
Physician to Tonin.
TONIN
Visited Toso.
TREVISAN MRS.
Lived in house with Tonin.
TREVISAN MR.
Lived in house with Tonin.
POLLITZ
Nurse to Toso.
MRS. TOSO
Recovered.
HOME NO PRECAUTIONS
HOSPITALIZATION
COMPLETE ISOLATION
AUGUST
15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
SEPTEMBER
1 2 3 4 5 6 7 8 9 10 11

lung. A diagnosis of influenza was made. Di Bortoli felt somewhat improved for two days and then developed a severe pain in the right axilla. Upon examination at this time the physician found an axillary swelling that was exceedingly tender and a temperature of 100.5.° Another physician was called in consultation on August 15th and the swelling was incised. Nothing was found but a bloody serum. The bubo was again opened on the 19th. At this time the patient was suffering great pain and heroin was administered with no effect. At 4 o'clock in the morning of the 20th the physician again was called and found the patient pulseless. He died shortly after the doctor's arrival. The second case to develop was that of Toso, who lived in the same house with Di Bortoli and who was taken sick August 25th, dying August 28th. On August 29th Mrs. Toso was taken to a hospital, with a temperature of 105° and a diagnosis of influenza-pneumonia. She recovered and was discharged from the hospital on September 6th. In quick succession appeared the cases of Young, onset August 29th, died September 2d; Casetti, onset August 30th, died September 2d; Tonin, onset August 31st, died September 3d; Pollitz, onset September 1st, died September 4th. All of these cases had been in direct contact with Toso. Young was his landlord and had helped take care of him; Miss Pollitz was his nurse and Casetti and Tonin had visited him. From three of these cases seven more developed by direct contact. Contacts with Tonin were: Augustine Trevisan, onset September 5th, died September 8th; Assunta Trevisan, died September 10th; these two lived in the same house with Tonin. The third contact was Dr. Kretsinger, Tonin's physician, who was taken ill September 5th and died September 8th. The fourth contact was Mrs. Weichert, Tonin's nurse, who was stricken September 6th and died September 11th. The cases originating from contact with Casetti were: Amario, his cousin, who rode in the ambulance with him to the hospital, and who died September 7th. Orlando visited him at the hospital; he was taken sick September 5th and died September 8th. One case resulted from contact with Young, his physician, Dr. Wood, who was taken sick September 5th and died September 9th.

The first three or four of this series were thought to be influenza with pneumonia, but the suspicions of Dr. Crosby, the Oakland Health Officer, becoming aroused, he ordered an autopsy in the case of Amario, which was performed by Dr. Tiffany, autopsy surgeon of the coroner; a representative of Dr. Crosby, in the person of Dr. Moore of the Western Laboratories, being present. It was reported to the Bureau of Communicable Diseases that at this autopsy Dr. Moore had made slides from the organs, but no cultures were taken for the reason that the body had been embalmed. It was also reported that the conclusion was that death was due to influenza-pneumonia. It later developed, however, that Dr. Moore's slides from the lungs showed numerous bipolar staining bacilli resembling plague. On September 11, Dr. Crosby notified Dr. Kelly, Director of the Bureau of Communicable Diseases, that another suspicious death had occurred the previous afternoon, and had been autopsied in the presence of Dr. Moore, the body not having been embalmed. He stated that Dr. Moore had found bipolar organisms in the lungs and spleen and had inoculated guinea pigs from the lung tissue. The bacteriological proof of the identity of this case (Mrs. Trevisan), as one of plague, was made by the Hygienic Laboratory of the Board of Health and by the Federal Laboratory, independently; cultures being obtained in both instances from one of the guinea pigs which died with typical gross lesions of plague, following the inoculation by Dr. Moore with material from the human case. The post mortem findings, as de-

scribed by Dr. Moore in this case, were as follows, which description applied, according to the statement of Dr. Tiffany, the coroner's autopsy physician, to the other cases of the series which were autopsied by him:

No petechia were observed on the skin surfaces of the body. There was marked bilateral hydrothorax, both pleuras containing a considerable quantity of clear, straw-colored fluid, no blood or pus being evident. Pericardium contained from 100 to 150 cc. of dark straw-colored fluid; no blood. There was a bilateral, lobular pneumonia diffused over both lungs; on incision surface very moist and a thin bloody fluid exuded freely. Kidneys showed evidence of an acute parenchymatous nephritis, spleen from 10 to 12 inches long, being fully four times its normal size. Its substance was soft dark purple in color, of almost semifluid consistency. Peribronchial lymph nodes were enlarged, soft and hemorrhagic; no enlargement of lymph glands noted elsewhere in the body. Smears from the lung and spleen were made which showed upon examination, after staining with carbol-thionin, numerous typical bipolar staining organisms.

Although only one case has been positively identified as plague, the clinical history of the other cases, and the description of the post mortem findings, taken in connection with the very clear history of contact, as worked out by Drs. Force and Kelly of the Bureau of Communicable Diseases, leaves no room for doubt as to the identity of the entire series as cases of pneumonic plague; the first one of the series, Di Bertoli, being a case of bubonic plague with a supervening pneumonia, which was communicated in the usual manner, i.e., droplet infection and personal contact with the other victims, who contracted the pneumonic type by reason of the mode of entry of the virus. There is considerable doubt as to the identity of a case of plague in Miss Pollitz, the nurse to Toso, because the reported clinical history might give rise to the suspicion of another cause of death, chronic nephritis being the assigned cause and no post mortem examination having been made.

Some question might also be raised in the case of Mrs. Toso, the sole basis of such question being the fact that she recovered. This is not a valid objection, as the recovery of pneumonic plague cases is not an unknown occurrence, although the mortality in this form of the infection is very high.

Another interesting incident was the sending of a specimen of sputum from the case of Dr. Wood to a reliable laboratory in San Francisco, which made the report of type identification of pneumococci, but made no mention of the presence of bipolar bacilli.

The finding of bipolar organisms in this sputum apparently excited no suspicions at the laboratory. The sudden termination of the series of cases in the fourth generation of infections was probably due to the hospitalization of all the cases with complete isolation and careful medical asepsis, which no doubt was more careful than would have usually been the case with pneumonia, because there was a feeling of alarm caused by the rapidly fatal character of the preceding cases. In this connection it may be profitable to discuss some of the future probabilities considered in the light of the apparently easy checking of this epidemic. Certain conclusions reached by Teague and Barber* in their work in Manchuria throw some light on this question.

The Manchurian epidemic, occurring during the winter of 1910 and 1911, was wholly of the pneumonic type and within three months 50,000 people died from the disease. In searching for reasons as to why this particular epidemic should be exclusively of the pneumonic type, whereas the great number of cases in India had been of the bubonic form,

*Philippine Journal of Science, 1912, page 187.

Teague and Barber observed that the most noticeable difference prevailing in the two instances of epidemic prevalence was one of temperature. In Manchuria, during the entire season of the epidemic, the temperature ranged around 30° below zero C., whereas, in India the temperature was in the neighborhood of 30° above zero C. Following the lead indicated by this difference in temperature, they carried out a series of experiments with plague and other cultures and experimental animals. The following is quoted from a summary of their article:

"Hence, it seems probable that the plague bacilli contained in fine droplets of pneumonic plague sputum would suffer death from drying in a few minutes unless they were suspended in an atmosphere with an extremely small water deficit. Infection in pneumonic plague follows the inhalation of droplets of pneumonic sputum, and obviously the longer these droplets remain suspended in the air, the greater is the danger of infection. As has just been stated, these fine droplets disappear very quickly except when they are suspended in an atmosphere with a very small water deficit. Such an atmosphere is, under ordinary circumstances, of common occurrence in very cold climates, whereas, it is extremely rare in warm ones. Hence, since the droplets of sputum persist longer, the plague bacilli remain alive longer in the air, and there is a greater tendency for the disease to spread in cold climates than in warm ones.

"In harmony with the above ideas, we find that the only great epidemic of pneumonic plague of modern times occurred in Manchuria during the winter of 1910 to 1911, when the atmospheric temperature was many degrees below zero Centigrade. The disease spread with amazing rapidity. Furthermore, although during the past fifteen years there have been millions of plague cases in India, and 2 to 5 per cent of these have been cases of plague pneumonia, yet this form of the disease has not assumed epidemic proportions. The largest epidemic of pneumonic plague in India (1,400 deaths) occurred in Kashmir, in northern India, at an elevation of 1,524 meters above the sea level during very cold weather."

The above conclusions were based on a series of experiments on the effect of drying on the viability of plague and other organisms and on the length of life of these organisms suspended in droplets of moisture under varying conditions of humidity and temperature.

Adopting the conclusions of Teague and Barber, then, we may conclude that under the circumstances of temperature and low humidity existing in Oakland at the time of this outbreak, conditions were not favorable for the transfer of infected droplets, carrying plague bacilli from one person to another, excepting under conditions of the closest contact. The drying and consequent death of the bacillus was so rapid that the ordinary measures of prophylaxis, which were easy of application, sufficed to check the progress of the infection when all existing cases were being cared for in hospitals. With the same line of reasoning, we can surmise that if a different condition of temperature and humidity existed, the result would have been far different, and we are justified in drawing the conclusion that this epidemic teaches that we have still another danger to be looked forward to from the continued existence of plague among the ground squirrels in California. We have, heretofore, been accustomed to think principally of the possible occurrence of an epidemic of the bubonic type following the extension of the disease to the rat population of some of our cities. The gravity of the situation is enhanced considerably when we realize the possibilities of a human case in the incubation stage of the disease following contact with squirrel plague, journeying to some eastern state in the winter time and developing an infection such as that of Di Bortoli, in the proper climate setting

for the development of a pneumonic epidemic which could easily be found in some of our eastern states in winter. The prospect of the consequences that could follow such a set of circumstances is not at all reassuring.

The State Board of Health took immediate action upon receipt of the first information suggesting the true nature of the cases, and was ably assisted by Dr. Crosby, the health officer of Oakland. The city council of Oakland promptly made an emergency appropriation, following similar action by the Governor of California, and a corps of inspectors and rat catchers, jointly paid by the Oakland city health department and the State Board of Health, was put into the field. Embalming of all bodies before authentic information as to the cause of death was obtained was immediately stopped and a system of inspection of bodies of persons dying under circumstances that might by any possibility be attributed to plague in any form was established. To insure that no case might be overlooked, the death certificates were scrutinized and countersigned by a deputy detailed for that purpose. The medical profession of the bay region was advised by special letter as to the exact situation and physicians were urged to report immediately all cases of pneumonia and all cases of acute infection of any sort, the diagnosis of which was not perfectly clear. All such cases were visited for the purpose of making a clinical and bacteriological examination.

It is very evident that the medical profession of the Pacific coast should be continually on its guard for cases of plague which may occur at any time so long as the infection exists among the rodents of the state. It should be remembered that in the early period of plague epidemics the first cases are very apt to be overlooked and mistaken for other conditions. The bubonic and septicemic form is frequently mistaken for typhoid fever, pyogenic infections, etc. All cases with acute enlargement and tenderness of the lymphatic glands should be looked on with suspicion, and bacteriological examination made wherever possible. The pneumonic form is particularly hard to identify, excepting by bacteriological tests. On the Pacific coast bacteriologists should be on the constant lookout for the presence of bipolar staining bacilli in the sputum of pneumonia cases.

SUMMARY

1. The third visitation of human plague in California occurred in Oakland, in August and September, 1919.

2. This epidemic was of the pneumonic type, the first instance of this form appearing epidemically on this hemisphere.

3. The epidemic was promptly checked by the adoption of measures of isolation.

4. The endemic prevalence of plague among ground squirrels of California constitutes a permanent menace not only to the State of California, but also to the whole of the United States.

5. The measures of extermination, which are at present being conducted by the State of California, as represented by the State Board of Health and the federal government, and as represented by the United States Public Health Service, should be financed to such an extent as to permit an extensive campaign of extermination that would offer some hope of the conclusion of the work within a period of one or two years.

6. The pneumonic type of plague is probably not a serious menace on the Pacific coast, owing to climatic conditions; but could readily become a serious matter in other parts of the United States by extension from the Pacific coast under the proper climatic conditions.

EDITORIAL SECTION

AMERICAN JOURNAL OF PUBLIC HEALTH

Publication Office: 124 W. Polk Street, Chicago, Ill.
Editorial Office: 169 Massachusetts Ave., Boston, Mass.

A. W. Hedrich, C. P. H., Editor — J. Ritchie, Jr., Associate Editor

Editorial Assistants

E. R. Hayhurst, M.D. — David Greenberg — James A. Tobey
R. P. Albaugh, M.D. — M. P. Horwood, M.S. — Francis H. Slack, M.D.
E. B. Starr, M.D. — P. M. Holmes, M.D. — James M. Strang

Board of Advisory Editors

Peter H. Bryce, M.D., Ottawa, Canada — Prof. M. J. Rosenau, Boston, Mass.
Charles V. Chapin, M.D., Providence, R. I. — Prof. W. T. Sedgwick, Cambridge, Mass.
Eugene R. Kelley, M.D., Boston, Mass. — Prof. George C. Whipple, Cambridge, Mass.
W. A. Evans, M.D., Chicago, Ill. — Prof. S. M. Gunn, Paris, France.

All expressions of opinion and all statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

NOTICE TO SUBSCRIBERS: Subscription Price, payable in advance, $4.00 per year for United States and possessions; $4.50 for Canada and other foreign countries. Single copies, 50 cents postpaid. **Membership** in the American Public Health Association, including subscription to Journal, $5.00 per year. **In Change of Address** please give both old and new address, and mail before the tenth of the month to take effect with the current issue. **Mailing Date,** 5th of each month. **Advertisements** accepted only when commendable, and worth while both to reader and advertiser. **News Items,** interesting clippings and illustrations are gladly received, together with name of sender. **Copyright, 1919, by A. W. Hedrich.**

HEALTH A POLITICAL PLANK

There has been no better public acknowledgement in recent years of the fundamental necessity of proper administration of the public health than the formulation of a "plank" in its political platform by the convention of the Republican party assembled in Chicago. Principles for which the American Public Health Association has been outspoken are here accepted as among the needs of the country. How true it is that the dreams of yesterday are the realities of today.

"A thorough system of physical education for all children up to the age of nineteen," is one of the proposals, "including health supervision and instruction." Health supervision has been for years the goal towards which the school systems of the country have been turning their steps and health education is today a staff upon which the health administrator depends. These two factors, health supervision and health education, to quote the language of the "plank" still further, "would remedy conditions revealed by the draft and would add to the economic, industrial and economic strength of the nation."

Further still the "plank" realizes the necessity that the Government be a guide and an adviser. "National leadership and stimulation will be necessary to induce the states to adopt a wise system of physical training."

The "pull together spirit," so ably advocated by Dr. Vincent at the Chicago meeting of the Association, finds its place in the statement of the essentials of the best government, by a great political party, in these terms: "The public health activities of the Federal Government are scattered through numerous departments and bureaus, resulting in inefficiency, duplication and extravagance. We advocate a greater centralization of the Federal functions, and in addition urge the better coördination of the Federal, state and local health agencies."

Health officers throughout the country will welcome this appreciation of the importance of their profession and of the general line of thought of their leading men. Public health is certainly coming into its own as a power for the strengthening of the nation, so that in the tests for supremacy that the future

is certain to present, it may hold with undiminished lustre the high place that it has ever assumed when the freedom and the advancement of its citizens have been considered.

Child labor and women in industry are other "planks" in the platform involving principles with which the health officer is familiar, while housing is treated by the platform in a large and comprehensive way. Although Lincolns come occasionally from log cabins and some sanitarians may question the direct effect of housing upon health, the fundamental fact remains that in the environment that surrounds the hovel, the health risk is almost inevitably greater. Better housing—and the country needs it sorely—is a measure that can be given its proper place by interest in it of the National Government.

With the emphasis of the U. S. Government on health supervision, health education, National leadership and example, coördination and coöperation, and betterment of conditions in the industries, the health officer may attack his local problems feeling that he will have a support and a sympathy that are essential to his work. The "plank" in the platform of the Republican party will cheer him and strengthen his hand.

TEAM WORK AMONG HEALTH AGENCIES

In an encouraging number of states we find the beginnings of coördination between the various health activities. For a long time, most of the agencies have pursued their ways, each for itself. It has been a rather common thing to find independent, overlapping, and even conflicting efforts between the organizations for child welfare, tuberculosis, public health nursing, mental hygiene, social hygiene, and the official agencies.

Organizations for coöperation now exist in Kansas, Maine, Ohio, Delaware, Massachusetts, and doubtless other states. The latest addition to the list is Massachusetts, where the Massachusetts Central Health Council of state-wide agencies was organized in May, 1920. Each of the constituent organizations sends two representatives to the Council. Every two months the latter meets and discusses the respective activities.

It is to be emphasized that the work of this Council is not repressive. Its functions are advisory, if anything, the programs of the constituent organizations will be expanded, because of the opportunities for service created through the suggestions of other organizations. The public health nursing organization, for example, will find that the cancer society has a message which should be carried to the public through public health nurses.

The initial activities of this organization will be to bring representatives from the various fields together to talk things over. Each organization will present its programs and problems for discussion. Other activities will, however, suggest themselves as time goes on. For example, the influence for legislation of the combined organizations will be stronger than of the constituent units. It may be found advisable later to conduct one campaign for funds instead of the rather bewildering number of the past. Finally, organization of this type tends to bring about a more wholesome relation between the official and the non-official health worker. The present regrettable condition in this regard has been largely due through failure to get together and talk things over. As a consequence there is no agreement as to what are the respective duties of the official and the voluntary health worker.

From starting out as forums for the discussion of problems of coming interest it is not inconceivable that some of the constituent organizations may find it advantageous to amalgamate, or to establish a federation involving firmer ties than at present. In the beginning, however, Councils like this will do well to leave to their constituent organizations a maximum autonomy.

BOOKS AND REPORTS REVIEWED

Yours for Sleep. *William S. Walsh, M. D., New York: E. P. Dutton and Co. 1920.*

Insomnia may be corrected in so many cases by the exercise of enlightened common sense that a book of this character will be of real value to the person suffering from sleeplessness. It is for him that the volume is written, and it will therefore be of only secondary interest to the physician. The health officer will be interested only because of the fact that the living of a moderate, hygienic existence will usually prevent insomnia.

The various chapters take up the physiology of sleep, wakeful disorders of sleep, insomnia and its causes, worry, neurasthenia, indigestion and constipation, hypertension and arteriosclerosis, eye defects, diseases of the teeth and gums, value of exercise and fresh air, hygiene of the bed and the sleeping room, and remedies for sleeplessness.

Dr. Walsh's suggestions are concrete and generally sound.—*R. B.*

✚

Standard Nomenclature of Diseases and Pathological Conditions, Injuries and Poisonings for the United States. *Washington, D. C., Government Printing Office, 1920.*

Lack of standardization is a common failing of the age, and much time is consumed, much discussion aroused and much misunderstanding caused because of the employment of various names for the same thing or failure to realize the precise definition of certain words. The confusion formerly existing in stating the causes of death to the authorities for record has largely been swept away by the international classifications. For diseases and pathological conditions the definition of the terms has been undertaken and is set forth in the volume. Begun by the Council of National Defense, the list has been completed by the Bureau of the Census under the supervision of William H. Davis, M. D., Chief Statistician for Vital Statistics and Richard C. Lappin, Expert Special Agent.

The nomenclature is divided into three sections, diseases and pathological conditions; injuries, wounds, etc., by external causes; and poisonings and intoxications. An expansive notation admits of additions in future reprintings of the list, and that these may be the more perfect, criticisms and suggestions are solicited. This little volume will certainly be most helpful.—*R.*

✚

Industrial Educational Literature. The *National Safety Council* is devoting more and more space in its educational leaflets and bulletins, which are distributed weekly, to the subject of industrial hygiene and the prevention of occupational diseases. Recently there have been issued by the Council illustrated leaflets on the subject of fatigue reducing chairs, correct types of acid containers, methods of opening acids drums, value of the thermometer in the workroom to keep temperature down, and similar material. Attention should especially be called to Safe Practices Bulletin No. 21, entitled *Accident Records, How to Compile Them and How to Use Them;* and also to Bulletin No. 32 entitled *Exhaust Systems.* The address of the Council is 168 North Michigan Avenue, Chicago, Illinois.

✚

The Modern Hospital, having outgrown its former quarters has removed its offices to its own building, 22-24 East Ontario Street, Chicago, Ill. In doing this the well known authority on all matters pertaining to the hospital is strengthening the growing group of medical centers in Chicago, for within a few blocks is the house of the American Medical Association while the new home of the American College of Surgeons is near at hand. Within the Modern Hospital Building will be gathered a goodly number of affiliated activities, *The Modern Hospital* and its *Year Book,* and *Modern Medicine,* together with the offices of the American Hospital Association and the National Catholic Welfare Council. Other developments are in the air which are likely to make this center more noteworthy to all who are interested in these particular fields of work.

BOOKS AS A HELP TO HEALTH

T. S. DaPonte.

The war probably did more than any other agency in all history to promote the use of books. Homesick men, tired men, wounded men, all took to books to keep their minds off their troubles and their pains. Men who formerly had scoffed at books, the pleasures they could give and the things they could teach, turned to them as they would turn to faithful friends. And the habit of reading acquired by men in active service and those incapacitated by wounds or disease has clung to them since, helping many to a state of mental satisfaction, and others to material success.

During the war the American Library Association distributed more than 7,000,000 volumes to men in service at home and overseas. Those who were active in camp and field had, of course, some time to read, but the most beneficial effects through books was achieved among men in the hospitals. For them the hours passed slowly, and books were necessary to help them in comparative contentment.

Not only were tales of travel, adventure and fiction in demand, but there was an unceasing call for technical books and special kinds of reading matter such as might help a man to climb to a more advanced place in the world's workshop after army life was over. Many a soldier who, since the armistice, has achieved success in profession or trade, acknowledges that he was helped materially by books that he read while in the service.

Doctors in the military hospitals emphasized the therapeutic value of reading, and the A. L. A. rapidly marshaled its resources and was able to supply books, magazines and newspapers to more than 200 hospitals, and librarians to 75. Since the war's termination the Association has kept up this work to a very considerable degree, and still is supplying a book and magazine service to the 42 Public Health Service Hospitals. In nine of these the A. L. A. has full-time librarians stationed, and in others the Red Cross and the A. L. A. combine to pay the salary of a librarian who also acts as Red Cross Director, the Red Cross furnishing the quarters for the library, and the A. L. A. the books, newspapers and magazines. In some cities the public libraries consider it as part of their regular duties to give a special service to these hospitals.

This great work which the Association did during the war made it ambitious to accomplish even more for the benefit of civilization and the advancement of good citizenship, and it, therefore, has adopted an Enlarged Program which comprises the promotion of efficiency, contentment and industry by inculcating a desire for good reading, and placing books where they will be easy of access to all. The Association's slogan "Books for Everybody!" makes known its intent in a general way, but there are many special branches of this general program, such as urging that a more diversified literature be printed for the blind in the standard Braille type, and that publishers be shown the necessity of having books, which tell of American ideals and traditions, printed in foreign languages so that the new comers to this country can readily acquire an understanding of its aims, and the opportunities which it offers.

For these purposes as well as to urge the adoption of the county library system through which books will be put within easy reach of the most isolated communities, and to facilitate its present service to the Merchant Marine, coast guards, and lighthouse stations and patients in the Public Health Service hospitals, the Association is raising $2,000,000. This sum is being obtained through the personal efforts of librarians, library trustees and friends of libraries, and without recourse to a "drive."

Theodore Roosevelt once said: "After the church and the school the free public library is the most effective influence for good in America. The moral, mental, and material benefits to be derived from a carefully selected collection of good books, free for the use of all the people, cannot be overestimated. No community can afford to be without a library."

This view likewise has been endorsed by other great men and women, and almost universally by the press. Writing on the subject the *New York World* recently said editorially: "What has been done for a few towns by private generosity, with or without public co-operation, should be done for many towns and outlying regions, needing to be more closely knit to the intellectual life of the country as a whole, by public action at the public cost."

ASSOCIATION NEWS

HEALTH EMPLOYMENT BUREAU

Help-wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Field Director Rural Sanitation in Southern State. Salary, $2,700 to $3,600, with $800 expense allowance. Address 352, care of this Journal.

Director for large teaching dispensary in North Atlantic State. Previous experience in hospital or dispensary administration desirable. Medical degree preferable, although not essential. Salary, about $6,000, according to ability. Address 359, care of this Journal.

Food chemist at the Health Bureau, Rochester, N. Y. Salary, $2,500 to $3,000, according to qualifications and experience. Apply to Health Officer, Rochester, N. Y.

Full time health officer is desired for Oakland County. Salary, $3,600, with allowance of $700 for auto maintenance. Address 361, care of this JOURNAL.

Woman technician directress laboratory City Health Department, capable of doing water and milk analyses and routine bacteriology. Salary to begin, $1,500. Apply with full information to R. L. Carlton, M. D., City Health Officer, Winston-Salem, N. C.

Full time city and county administrative health officer in North Carolina; population approximately 40,000; salary, $3,500 to $4,000 to experienced man. Address 363, care of this JOURNAL.

Recent medical graduate interested in bacteriological or serological research and qualified to teach hygiene in state university. Man with a medical degree preferred, but one without will be considered. Salary, $2,500 to $3,500. Address 364, care of this JOURNAL.

Organizer for Venereal Disease Bureau in the Middle West. Medical degree required. Address 365, care of this JOURNAL.

One chief medical officer. Salary, $3,600. Two public health physicians. Salary, $3,000 each. One laboratory technician. Salary, $2,400. Reorganizing Health Department. Wonderful opportunity. City of 90,000. Send for qualification requirements. Address John A. Kappelman, M. D., Health Commissioner, Canton, Ohio.

SAN FRANCISCO MEETING

Reservation Blank for Hotel—Tear off on this line

To Dr. Gayle G. Moseley,
No. 333 Pine Street,
San Francisco, Cal.:

Please reserve for me.....rooms for.....persons for the A. P. H. A. Meeting from September.....till September.....

Place cross (X) after your preference.

With bath. Single room..... Double room..... Twin beds.....

Without bath. Single room..... Double room.....

Preferences in hotels. Name two or three.....

Maximum rate per day for room..... Minimum rate per day for room.....

Name .....

Street address .....

City ..... State .....

TRIP TO CALIFORNIA

For the information of members of the A. P. H. A. who have in mind attendance at the Forty-ninth Annual Meeting in San Francisco, Cal., September 13-17, 1920, the JOURNAL assembles references to the principal facts which have already been given in detail. Blanks are also furnished, which may be convenient for securing Pullman car reservations, also rooms in the hotels. A list of hotels is here given together with the accommodations they offer and the rates for these accommodations.

The Palace Hotel is to be the Association Headquarters. Meetings will be held in the Auditorium, Civic Center.

For rooms at the hotels address Dr. Gayle G. Moseley, No. 333 Pine Street, San Francisco, Cal., Chairman, A. P. H. A. Hotel Committee, giving details of accommodations desired and the limits of cost of same. For a guide the form on page 610 has been prepared, which may be filled out, detached and sent forward. You will receive a reply confirming your reservation.

To secure your transportation make application to your local railway agent who will furnish tickets from your home city to San Francisco and return. He will furnish them in accordance with the route that you select.

SAN FRANCISCO HOTELS

		Room with Private Bath	Room Without Bath
Palace Hotel, Association Headquarters	Single	$5.00 to $ 8.00	
	Double	8.00 to 14.00	
Hotel St. Francis, Union Square	Single	5.00 to 8.00	
	Double	8.00 to 14.00	
Hotel Stewart, Geary St. at Union Square	Single	3.50 to 4.00	
	Double	5.00 to 5.50	
	Twin beds	6.00	
Clift Hotel, Geary St. at Taylor	Single	4.50 to 5.00	
	Double	7.00 to 8.00	
Hotel Plaza	Single	2.50 to 3.50	Single $2.00 to $2.50
	Double	4.50 to 5.50	Double 3.00 to 4.00
	Twin beds	6.00	
Hotel Whitcomb, Civic Center	Sinble	4.00 to 6.00	Single 1.50 to 2.50
	Double	5.00 to 8.00	Double 2.00 to 3.00
American plan	Single	4.00 to 5.00	Single 3.50 to 4.50
Bellevue Hotel, Geary St. at Taylor	Single	3.50 to 4.00	
	Double	5.00 to 6.00	
Chancellor Hotel, Powell St. at Union Square	Single	3.00	
	Double	4.00	
	Twin beds	4.50	
Hotel Argonaut, Fourth St. and Market	Single	2.00 to 2.50	Single 1.50
	Double	3.00 to 3.50	Double 2.00

Reservation Blanks for Berth in Pullman Train—Tear off on This Line

---

DR. W. A. EVANS, Chairman A. P. H. A. Travel Committee,
906 Tribune Building, Chicago, Ill.

Reserve for me.....berths on the A. P. H. A. Special Train to the Coast, to leave Chicago on Wednesday, September 8, 1920, at 10:30 P. M.

Name .....

Address .....

The rate from Chicago to San Francisco and return is $96.12. The rates from other important cities east of the Mississippi are given in the JOURNAL for June, page 544. The itinerary of the special A. P. H. A. train from Chicago to the Coast may be found in the May JOURNAL, page 479, and Pullman rates are in the same JOURNAL, page 484.

Those who intend to board the A. P. H. A. Special at Chicago will secure their round trip railway tickets (San Francisco and return) from their local agents, and provide Pullman accommodations from the point of origin to Chicago. For Pullman reservations on the A. P. H. A. Special, write to Dr. W. A. Evans, and then claim your reservations and make payment for the same at the station of the C. & N. W. R. R. in Chicago.

It is expected that there will be special cars from Boston and New York to be attached to the Special in Chicago. Final information will appear in the July NEWS LETTER.

Order your reservations of Dr. Evans NOW! (Use blank on page 611.)

PERCENTAGES OF QUOTAS FILLED TO MONDAY NOON, JUNE 28, 1920

TOTAL NUMBER OF MEMBERS RECEIVED TO DATE, 1,535, or 51% OF QUOTA

	Percentage of quota filled		Percentage of quota filled
Utah	457	Oklahoma	53
New Mexico	318	Delaware	50
North Carolina	273	Massachusetts	48
California	145	Iowa	48
Saskatchewan	142	Wisconsin	45
Colorado	127	Missouri	43
Idaho	125	West Virginia	43
Maine	117	New York	37
Florida	117	New Jersey	35
Montana	110	Tennessee	30
North Dakota	106	Manitoba	27
Nova Scotia	100	Arizona	25
Rhode Island	91	Indiana	23
Vermont	88	Illinois	23
South Dakota	85	Virginia	22
Maryland and D. C.	82	Nebraska	21
Alabama	78	South Carolina	19
Connecticut	69	New Hampshire	19
Ohio	60	Kansas	17
Michigan	59	Kentucky	17
Washington	58	Mississippi	15
Minnesota	56	Pennsylvania	14
Arkansas	54	New Brunswick	13
		Texas	12

LIST OF NEW MEMBERS

Proposed for Election to the

A. P. H. A.

June 15 to June 22, 1920, inclusive.

Names of Sponsors are set in **Bold Face Type.**
Names of New Members are in Light Face Type.

ALABAMA

J. D. Dowling, M. D., Birmingham.
Samuel A. Tarrant, Sanitary Officer, Board of Health, Birmingham.
E. E. Jackson Lumber Co. (sustaining member), Riderwood.

F. B. Johnson, Montgomery.
Gordon S. Bunkley, Local Director, Malaria Control, State Board of Health, Shelby.

CALIFORNIA

I. R. Bancroft, M. D., Sacramento.
G. C. Bellinger, M. D., Supt. Tuber. San., Salem, Ore.

Agnes Walker, M. D., San Francisco.
Annie D. MacRae, M. D., Bacteriologist, Health Dept., San Francisco.
Julia George, Social Worker, San Francisco.

COLORADO

C. G. Hickey, M. D., Denver.
Sarah E. Barkley, R. N., Public Health Nurse, Fowler.

IDAHO

E. R. Dooley, Twin Falls.
A. A. Newberry, M. D., Filer.
J. N. Davis, M. D., City Health Officer, Kimberly.

ILLINOIS

S. S. Winner, M. D., Chicago.
W. G. Sachse, M. D., Health Officer, Morris.

C. St. Clair Drake, M. D., Springfield.
E. H. Best, M. D., Commissioner of Health, Freeport.
C. E. Crawford, M. D., District Health Officer, Rockford.

Mary E. Wilson, R. N., Springfield.
Harry W. Schumacher, M. D., State Dept. of Health, Springfield.
Streator Red Cross Association.

IOWA

John W. Teed, Bloomfield.
Beulah Bennett, R. N., Public Health Nurse, Bloomfield.
Organized Welfare Bureau, Sioux City.

KANSAS

Edna Flanagan, Abilene.
C. F. Attwood, M. D., County Health Officer, Abilene.

LOUISIANA

Oscar Dowling, M. D., and Mary L. Bailey, New Orleans.
Edgar J. Beranger, M. D., Acting Asst. Surgeon, U. S. P. H. S., New Orleans.

R. C. Williams, M. D., New Orleans.
R. R. Spencer, M. D., Medical Officer, U. S. P. H. S., New Orleans.

MAINE

Wilfrid A. Hennessy, Bangor.
John Wilson, Pres. Bangor Associated Charities, Bangor.

MARYLAND AND D. C.

C. L. Ewing, Baltimore.
Theodore C. Buck, Jr., Bacteriologist, Baltimore.

Wm. Royal Stokes, M. D., Baltimore.
John J. Dunn, Jr., Bacteriologist, Baltimore.

Carroll Fox, M. D., Washington.
James Leslie Busby, M. D., U. S. P. H. S., Takoma Park.
R. S. Carey, M. D., P. A. Surgeon, U. S. P. H. S., Washington.
Martin Cooley, M. D., U. S. P. H. S., Washington.
Charles S. Cowie, M. D., Hyattsville.
Sherwood Dix, M. D., P. A. Surgeon, U. S. P. H. S., Washington.
Ella R. Eales, M. D., A. A. Surgeon, U. S. P. H. S., Washington.
Thomas Foster, M. D., Surgeon, U. S. P. H. S., Glen Echo, Md.
E. D. Graves, M. D., U. S. P. H. S., Washington.
Gordon B. Hamilton, M. D., A. A. Surgeon, U. S. P. H. S., Washington.
Carl J. Harris, M. D., Surgeon U. S. P. H. S. (R), Washington.
Samuel B. Harris, M. D., Asst. Surgeon, U. S. P. H. S., Washington.
Henry Hayes, M. D., P. A. Surgeon, U. S. P. H. S. (R), Washington.
Earl K. Holt, M. D., Takoma Park.
J. S. Laird, M. D., A. A. Surgeon, U. S. P. H. S., Washington.
Horace M. Lowe, M. D., Asst. Surgeon, U. S. P. H. S., Washington.
George I. McKelway, M. D., U. S. P. H. S., Washington.
J. H. Mendelson, M. D., U. S. P. H. S., Washington.
Charles E. Ralph, M. D., P. A. Surgeon, U. S. P. H. S., Washington.
C. S. Rine, D. D. S., P. A. Dental Surgeon (R), Washington.
L. B. Rogers, M. D., A. A. Surgeon, U. S. P. H. S., Washington.
George A. Rowland, M. D., Surgeon (R), U. S. P. H. S., Washington.
Margaret R. Stewart, M. D., U. S. P. H. S., Takoma Park.
L. M. Wilbor, M. D., P. A. Surgeon (R), U. S. P. H. S., Alexandria, Va.

Carl E. Miner, M. D., Washington.
Henrietta Additon, Exec. Asst. U. S. Interdepartmental Social Hygiene Board, Washington.
Ormie C. Lance, Supervisor, Interdepartmental Social Hygiene Board, Washington.

MASSACHUSETTS

B. W. Carey, M. D., Boston.
Fred O. Elder, M., D., Peabody.

Wm. C. Woodward, M. D., Boston.
Allston Burr, Chairman, Metropolitan Chapter, A. R. C., Chestnut Hill.

MICHIGAN

J. H. Kellogg, M. D., Battle Creek.
M. May Allen, M. D., Race Betterment Foundation, Battle Creek.
William H. Riley, M. D., Battle Creek.

R. S. Eekman, Jackson.
Mayme Lewis, Dietitian, Foote Memorial Hospital, Jackson.

Blanch N. Epler, M. D., Kalamazoo.
Mabel Kiltz, R. N., Kalamazoo.
Harriet M. Stone, M. D., Kalamazoo.

Philip D. Bourland, M. D., Lake Linden.
Calumet & Hecla Mining Company, Atten. Jas. MacNaughton, Vice-Pres., Calumet.

Wm. F. Petrie, Lansing.
James A. Humphrey, M. D., Health Officer, Lansing.

R. M. Olin, M. D., Lansing.
F. W. Edelmann, M. D., Saginaw.
Anna M. Schill, R. N., Supt. Hurley Hospital, Flint.

Grace Amadon, St. Joseph.
Emmanuel Missionary College, Berrien Springs.
Elizabeth Fogg Upton, St. Joseph.

F. W. Edelmann, M. D., Saginaw.
Wallis C. Smith, Chapter Chairman, A. R. C., Saginaw.

MISSOURI

M. P. Ravenel, M. D., Columbia.
James R. Pyrtle, M. D., Deputy Health Commissioner, Centerville.
R. W. Berry, M. D., Deputy Health Commissioner, Mexico.
E. H. Brandt, M. D., Deputy Health Commissioner, Warrenton.
John Franklin Chandler, M. D., Deputy Health Commissioner, Oregon.
J. E. Gartside, M. D., Deputy Health Commissioner, Kingston.
Willard H. Gooch, M. D., Elmer.
J. H. Holman, M. D., Unionville.
Austin McMichael, M. D., Deputy Health Commissioner, Rockport.
Wilson Murray, M. D., Deputy Health Commissioner, Platte City.

Geo. H. Jones, M. D., Jefferson City.
H. T. Phillips, Mo. Tuber. Assn., Warrensburg.

MONTANA

S. K. Campbell, M. D., Harlowton.
J. U. Williams, Supt. of Schools, Harlowton.

NEW HAMPSHIRE

John C. Chase, Derry Village.
Charles E. Newell, M. D., Derry Village.

NEW JERSEY

John Hall, Freehold.
Harvey S. Brown, M. D., Health Officer, Freehold.

NEW YORK

Fenimore D. Beagle, Albany.
Matie T. Jones, Community Nurse, Brockport.

F. J. Sherman, M. D., Ballston Spa.
Grace H. Redmond, R. N., Community Nurse, Ballston Spa.

S. J. Byrne, M. D., Brooklyn.
W. E. Ford, M. D., U. S. P. H. S., New York.

Halsey J. Ball, M. D., Glens Falls.
Louis A. Parmenter, M. D., Health Officer, Corinth.

S. W. Sayer, M. D., Morristown.
H. R. Thompson, M. D., Health Officer, Morristown.

C. R. Hervey, M. D., Oswego.
J. D. Olin, M. D., Watertown.
B. W. Severance, M. D., Health Officer, Phoenix.

Kenneth Allen, New York.
James W. Routh, Civil Engineer, Dir. Bur. of Municipal Research, Rochester.

H. M. Biggs, M. D., New York.
Dept. of Agricultural Chemistry, Cornell University, Ithaca.

Royal S. Copeland, M. D., New York.
Herbert J. Stone, M. D., Medical Inspector, Dept. of Health, New York.

C. E. Ford, M. D., New York.
J. R. de la Torre Bueno, Editor, Gen. Chemical Co. Bulletin, White Plains.
Gilbert G. Fox, M. D., Works Physician, Gen. Chemical Co., Newell, Pa.
C. D. Kunkel, M. D., Plant Physician, General Chemical Co., Pulaski, Virginia.
B. F. Lowry, M. D., Plant Physician, Gen. Chemical Co., Cleveland, Ohio.

NEW YORK CITY

C. E. Ford, M. D., New York.
John C. Phipps, M. D., Plant Physician, Gen. Chemical Co., Hudson Heights, New Jersey.

Rudolph Hering, D. Sc., New York.
Allan W. Cuddeback, Engr. & Supt. Passaic Water Co., Paterson, N. J.

NORTH CAROLINA

G. E. Reynolds, R. N., Charlotte.
Ethel Smith, R. N., Public Health Nurse, Charlotte.

Rose M. Ehrenfeld, Raleigh.
Mrs. Lionel Weil, Goldsboro.

W. S. Rankin, M. D., Raleigh.
Albert Anderson, M. D., Supt. State Hospital, Raleigh.
W. W. Faison, M. D., Supt. State Hospital, Goldsboro.
W. A. Hardenbergh, Sanitary Engineer, Charlotte.

K. E. Miller, M. D., Tarboro.
Charles L. Outland, M. D., Health Officer, Tarboro.
J. P. Brown, M. D., Fairmont.

OHIO

J. V. Greenbaum, M. D., Cincinnati.
Hiram B. Weiss, M. D., Cincinnati.

J. A. Kappelman, M. D., and Ruth E. Young, R. N., Canton.
Laurene F. Menke, Public Health Nurse, Canton.

OKLAHOMA

A. R. Lewis, M. D., Oklahoma City.
C. M. Bloss, M. D., Health Officer, Okemah.

UTAH

T. B. Beatty, M. D., Salt Lake City.
John R. Anderson, M. D., Springville.
Steele Bailey, Jr., M. D., Health Officer, Mammoth.
W. J. Bardsley, M. D., Health Officer, Park City.
William H. Bash, M. D., Health Officer, Clear Creek.
Geo. D. Bennett, Metropolitan Life Ins. Co., Ogden.
Brigham Young University, Atten. G. H. Brimhall, Pres., Provo.
F. J. Burton, M. D., Health Officer, Parowan.
Geo. Eaton, Prin. East Side High School, Salt Lake City.
F. R. Gledhill, M. D., Health Officer, Richfield.
J. A. Hagan, M. D., Health Officer, Gunnison.
Alma Hardy, Health Officer, Bountiful.
C. J. Heath, M. D., Health Officer, Marysvale.
E. S. Hinckley, State Industrial School, Ogden.
Branch Agricultural College of Utah, Atten. Roy F. Homer, Prin., Cedar City.
W. Karl Hopkins, Supt. Ogden Schools, Ogden.
R. M. Jones, M. D., Health Officer, Hiawatha.
Oscar A. Kirkham, Chief of Boy Scouts, Salt Lake City.
H. Claude Lewis, Supt. of Schools, Cedar City.
M. J. Macfarlane, M. D., Health Officer, Cedar City.
S. L. McCorkle, Supt. Moab Schools, Moab.
David O. McKay, Health Officer, Ogden.
H. K. Merrill, M. D., City Physician, East Logan.
Joseph R. Morrell, M. D., Ogden.
Ogden Chamber of Commerce, Ogden.
Henry Peterson, Supt. Logan Schools, Logan.
Geo. S. Sears, M. D., Health Officer, Manti.
E. A. Stranquist, M. D., Health Officer, Brigham City.
A. Z. Tanner, M. D., Health Officer, Layton.
E. R. C. Tracy, M. D., Health Officer, Delta.
W. Visich, M. D., Health Officer, Morgan.
F. J. Woodbury, M. D., Health Officer, St. George.
F. D. Worlton, M. D., Health Officer, Lehi.

VERMONT

Bern D. Colby, M. D., Rutland.
Mary A. Devlin, R. N., Public Health Nurse, Rutland.

VIRGINIA

L. J. Roper, M. D., Portsmouth.
D. R. Smith, Meat and Milk Inspector, Portsmouth.

W. F. Draper, M. D., Richmond.
Stanley B. Campbell, Sanitary Demonstrator, Richmond.

Roy K. Flannagan, Richmond.
Mamie Rice, County Nurse, Darlington Heights.

WASHINGTON

Mae E. Larkin, Seattle.
Katherine D. Stewart, City and County Bacteriologist, Yakima.

WISCONSIN

C. N. Harper, M. D., Madison.
Charles H. Lemon, M. D., Milwaukee.

W. D. Stovall, M. D., Madison.
M. Starr Nichols, Chemist and Bacteriologist, Madison.

R. A. Maddock, Oshkosh.
Arthur J. Hall, City Chemist and Bacteriologist, Appleton, Utah.

CANADA

Harry Lytle, Saskatoon, Sask.
T. W. Walker, M. D., School Medical Inspector, Saskatoon.

PORTO RICO

A. W. Hedrich, Boston, Mass.
P. Gutierrez Igaravidez, M. D., Dir., Inst. of Tropical Medicine & Hygiene, San Juan.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horwood and Mayo Tolman.

Is the Tuberculosis Campaign Based on Sound Principles?—Recently Dr. Raymond Pearl has questioned the value of the public health campaign. He maintains that public health officials fail to recognize the supreme importance of the racial factor in the control of mortality and morbidity rates, and as a result millions of dollars are squandered every year for public health work. He believes that the reason why communities varied in the amount of influenza they had was due to the differences in the biologic constitution and organic fitness of the people in each community. Dr. Armstrong, on the other hand, has found that although the racial factor is exceedingly important in determining the tuberculosis mortality and morbidity rates of a community, that race habits are equally important. Furthermore, Dr. Dublin has shown that the mortality rate from tuberculosis of the lungs among the white policyholders of the Metropolitan Life Insurance Company, has decreased 42 per cent from 1911 to 1919 among those persons in the age group from 35 to 44. He believes that the reason for this can be found in the intensive campaign of public health education, which communities and private agencies have waged during this period. Increased knowledge of the principles of personal hygiene has aided in diminished death rates. The Journal of Outdoor Life concludes that the tuberculosis campaign is based on sound principles, and that the campaign should be broadened to include other fundamental factors which bear on the prevalence of the disease.—*Journal of Outdoor Life*, April, 1920. (*M. P. H.*)

✣

Summary of Sanitary Situation in Oriental Europe.—The Central Bureau for the Control of Epidemics of the League of Red Cross Societies reports under date of January, 1920, a resumé of sanitary situations regarding epidemic diseases in Austria, Hungary, Czecho-Slovakia, Poland, Ukrainia, Roumania, Jugo-Slavia, and Italy. Typhus fever is the most wide spread and the most severe, constituting a source of great danger not only for eastern Europe but for the whole continent. It is spread throughout Russia and the epidemic is most virulent in the territory constituting the recent theater of war on the eastern front. Smallpox is similarly especially prevalent in this area, but has been successfully combatted in all those states which have instituted vaccination, either voluntary or compulsory on a large scale. Up to the time of the report plague was officially reported only from certain places in western Asia and southeastern Europe. But it is rumored to be present also in Ukrainia and Czecho-Slovakia. Cholera, while wide spread in that part of Russia adjacent to Poland, has so far not obtained a foothold in that country itself. —*Revue Int. Croix-Rouge*, March, 1920. (*H. N. C.*)

✣

$15,000 for Health Work in the Dominican Republic.—An additional appropriation of $15,000 has been made by the American Red Cross for hospital work among the poor of the Dominican Republic, following an investigation of health and sanitary conditions there by Dr. John M. Swan. A physician will be provided by the Red Cross to administer the Seybo Hospital as well as nursing personnel for the Municipal Hospital at Santo Domingo City. Certain necessary hospital and medical supplies will also be furnished, and a training school for native nurses will be established in the city.—(*J. A. T.*)

✣

Health in the Virgin Islands.—What the American flag means to the Virgin Islands, expressed in terms of life and death, is shown in vital statistics for the first quarter of the present year revealing a decided decline in the death rate. Health and sanitation work is under the direct supervision of the American naval government. The American Red Cross, which, through its Insular and Foreign Division has in the last two years spent nearly $44,000 for the equipment of hospitals on the Island, has also been of great and timely assistance in improving conditions.

A statement by the chief municipal physician of St. Thomas and St. John shows that the death rate for the first three months of 1920 is the lowest on record in the municipality. It is about one-half of the death rates recorded for the other (English, French and Dutch) West Indian Islands, and is .4 below the 1919 death rate of the registration

area in the United States. In addition the birth rate exceeded the death rate by more than 133 per cent. while infant mortality was 76.9 or less than one-half of that recorded in the surrounding islands and considerably below the rate in the States. The record is all the more remarkable because December, January and February are the months when mortality is slightly higher than at other times.

Funds for the administration of the islands are limited but in spite of this in two years the general death rate has been lowered from 39.5 per thousand to 13.6 and infant mortality from 251.7 to 76.9.—(*J. A. T.*)

✚

Public Health in Tasmania.—Any country that has a death rate of 8.84 commands the interest as well as the respect of public health officials. The annual public health report of Tasmania demonstrates that this distant island is, as the geography states, "salubrious." With a population of a little over 200,000 and a birth rate of 25.91, diseases of early infancy caused 149 deaths, cancer 145, tuberculosis (all forms) 124 and influenze 37. The highest figure of all is for diseases of the circulatory system which caused 248 deaths. The only other disease which reaches three figures in the "causes of death" tables are those of the nervous system, 177; the respiratory system, 212; and the digestive system, 158. Deaths from infectious diseases are measured by units or tens.

A child welfare association conducts home visiting, lectures, talks and demonstrations at a center. Two-thirds of the total expenditure of the health department went for the prevention and treatment of influenza. The laboratory reports indicate that supervision of food, especially milk, is actively pursued and that the department is by no means slow to take legal action when occasion arises. The general tenor of the report gives one the impression that the Tasmanian health department is full of youthful vigor.—Editorial, *Medical Officer*, May 1, 1920.—(*H. N. C.*)

✚

Insanitary Post Offices.—"Many of the post offices of the country are not fit for the purpose for which they were erected. In addition, insanitary conditions prevail in some of the largest. A notable example is the Chicago post office, the sanitary condition of which has been a source of complaint for over a decade. Lack of ventilation, proper lighting, and even of ordinary cleaning have been continuously complained of without redress. Such surroundings contribute to a lowered efficiency, a higher sick and death rate, and an earlier superannuation. Uncleaned, even undusted, mail sacks not only spread germs through the offices but must contaminate the mail received by the public. Tuberculosis rises to the dignity of an occupational disease among post office clerks."—Speech by Mr. Nelson in the House of Representatives on April 29. Reported in the *Congressional Record*.—(*J. A. T.*)

✚

Influenza and Tuberculosis.—Amberson and Peters in a critical review of the recent writings on the effect of the influenza epidemic on tuberculosis, and in an analysis of their own cases have come to the following conclusions: (1) What evidence we possess does not lend any support to the belief that the usual severity of an influenza attack is less among the tuberculous than among the nontuberculous; on the contrary pulmonary complications seem equally frequent, and our statistical records indicate that the case fatality of influenza among the tuberculous was higher than among the general population. (2) In a certain number of individuals epidemic marks the inception of definite pulmonary tuberculosis which did not previously exist as clinical disease. The onset of pulmonary tuberculosis following influenza may be rapid and immediate or insidious and remote. We believe that to ignore or deny the possibility of pulmonary tuberculosis as a *sequela* is to defer diagnosis and treatment of a number of patients requiring treatment unduly, with resulting limitations of their chances for recovery. (3) Among those already tuberculous, influenza may to a varying degree have reäctive, quiescent or apparently inactive lesions. Such reäctivation may be marked by a temporary exacerbation of symptoms of short duration or by the classical evidences of a severe relapse. That a large number do not pursue such a course and do escape definite permanent damage is not denied.—J. B. Amberson Jr. and Peters Jr. *Amer. Rev. of Tub.*, Apr., 1920, 71. *(D. G.)*

SYMPTOMS OF ILLNESS IN CHILDREN

These directions, phrased in language which may be understood by the parent or teacher, have been issued by the New York State Department of Health, Hermann M. Biggs, M. D., Commissioner. They are so direct that they merit the widest circulation, and the JOURNAL is pleased to be a factor toward that circulation.

Symptoms of illness in children which should be observed by parents and school teachers and their significance

GENERAL SYMPTOMS

Any deviation from the normal in a previously healthy child.

Disinclination to study or play
Unusual "tired feeling"
Drowsiness
Lack lustre of eyes
Cheeks flushed or pallid

SYMPTOMS OF FEVER

May be the beginning of an acute infectious disease or simply stomach trouble, intestinal infection or "cold."

These symptoms mark the beginning of most children's diseases.

Chills

The earliest symptoms of many acute infectious diseases; always demand attention.

Vomiting

May be due to simple gastro-intestinal disorder (indigestion). May be early symptoms of scarlet fever or other communicable disease.

Sweating

May be profuse and has probably followed a preceding chill or fever.

Nervousness
Restlessness
Irritability

May indicate beginning disease of brain or spinal cord, or a functional nervous disorder; St. Vitus dance or epileptic fits. May be due to eye strain, skin disorder, insufficient sleep, etc.

Cough

May be beginning:
Whooping cough
Tuberculosis
Measles
Simple cold or influenza (grippe)

Loss of weight

Particularly if associated with slight fever, swollen glands of neck, a limp, or pain in the back, may suggest tuberculosis.

Cold in the head

Especially with running nose and eyes: first symptoms of measles, or German measles. May be simple cold or influenza

Pallor

Indicates impoverished blood. With puffiness of the face may indicate kidney disease, especially after scarlet fever.

Frequent requests to go to the toilet

May indicate trouble with bowels, kidneys or bladder.

LOCAL SYMPTOMS

Swelling in the neck

May indicate:
Mumps
Tuberculous glands
Beginning of diphtheria
Suppurating glands after scarlet fever or measles
Bad teeth

Eruptions on the skin

May be one of acute infectious diseases.
May be one of communicable skin diseases, ring worm, impetigo.
If eruption is accompanied by scratching, may be, if on head, lice; if on hands and body, itch.

Discharges

If from nose, throat, ears or suppurating glands may be the result of measles or scarlet fever.
If irritating, creamy, or bloody from nose may be nasal diphtheria.
If from one nostril may be foreign body in nostril.

Scowling
Squinting
Headache
Holding book improper distance in reading

Symptoms of faulty eyesight

Eyes red

May be "Pink Eye," eye strain or beginning measles or German measles.

Eyes discharging

May be granular lids or beginning measles.

Sore throat

May be first sign of

Diphtheria	
Scarlet fever	Measles
Tonsilitis	Septic sore throat

Earache

May be due to adenoids or beginning middle ear disease.

Running ears

Middle ear infection (otitis). May be complication after infectious disease.
May be due to adenoids.

Pain

If referred to hip and accompanied by limp or inability to bear weight on limb: may be first symptoms of tuberculous hip disease.
If referred to back, may be beginning of Pott's disease.
If referred to right side of abdomen, may be appendicitis.
If referred to back of ear, may be beginning of mastoid disease.
If headache, may be beginning of meningitis; may be symptom of inflammation anywhere.

Salaries of Health Workers.—"A man faithful to his ideals frequently gets a thin time from some of the noble philanthropists who adorn our town councils." So writes a correspondent, evidently a health officer, to the *Medical Officer*. Health workers in Great Britain are apparently considerably exercised over the matter of salary. In this issue of the magazine devoted to their interests appear four items concerning remuneration and one on security of tenure of office. Previous issues have more than once dealt with these subjects. Under "Notes and Comments," this journal says, "It is becoming more and more a scandal that medical officers of health as regards their conditions of appointment and their remuneration should be almost entirely subject to the caprice of local authorities." The Ministry of Health has evidently taken a hand in the matter though its influence is apparently not a controlling one. The medical magazines have naturally voiced their sentiments for higher salaries and one at least has refused to publish advertisements calling for health officers where the salary offered was below a certain minimum. The attitude of the local governing body regarding this stand of the profession is reflected in a note relating to a meeting of the Worcestershire County Council. This county was offering the post of Assistant Tuberculous Officer at a salary of £450. Medical papers had declined to print the advertisement stipulating a salary of £450. The Ministry of Health in a letter endorsed this. The Chairman of the Council "objected very strongly to this sort of pressure" and "felt very much adverse to allowing the medical papers or the Ministry to dictate to them." The Council was apparently convinced that assistant medical officers of health could be secured for £450 and voted to advertise in the daily papers.—*Medical Officer*. May 1, 1920. (*H. N. C.*)

✚

Uncle Sam Keeping Candy Pure.—Candy in interstate commerce, the United States Department of Agriculture tells the manufacturers, must be pure and must carry a label that tells the truth.

On the question of purity, harmless colors that do not conceal inferiority are permitted. The use of shellac and other gums for coating is prohibited. The department holds that saccharin is injurious to health and its use in candy is prohibited. Talc, terra alba, barytes, chrome yellow, alcohol, narcotics, drugs, and mineral substances of all kinds are specifically forbidden in confectionery by the terms of the law. The use of cocoa dust in the manufacture of chocolate goods is held to be objectionable. A harmless mineral oil may be used for a slab dressing if used in such way that little or none of the oil is incorporated in the finished candy. Any of the decisions or opinions relating to the application of the Federal food and drugs act to confectionary may be obtained upon request from the Bureau of Chemistry, United States Department of Agriculture.—(*J. A. T.*)

✚

John Bull Pays for Healthy Babies.—John Bull believes that healthy babies make strong men, and is willing to pay for them, according to reports recently received by the Children's Bureau of the U. S. Department of Labor. In 1918 grants made by the national government in support of infant welfare work in England and Wales amounted to about $1,150,00, which represents one-half of approved expenditure for welfare centers, "health visitors," maternity care and similar work for mothers and children.

The number of health centers increased from 850 in 1917, to 1,550 in June, 1919, over one-half of them supported entirely by public funds. Attendance at the centers has also shown a phenomenal increase.

As a result, it is thought, of public protection of maternity and infancy, the infant mortality rate for England and Wales for 1918 is 94. There was no increase over 1917 even under the adverse conditions of war and influenza.

The 1918 infant mortality rate for the U. S. birth registration area, just published, is 101, 7 points higher than the rate for the preceding year.

Children's Bureau investigations have shown that Uncle Sam's babies die because they and their mothers do not have skilled care.

✚

Do not take drugs to cure the headache, says the United States Public Health Service. Consult a physician, a dentist or an oculist, to see if the cause can be located. Often the eyes, or the teeth may be at fault.

Health Classes for Children.—The health class presents the possibilty of communal service along various lines. It is an agency for general family adjustment in the matters relating to childhood. It possesses a vantage point for the prevention of tuberculosis, cardiac diseases and the development of defects of sight and hearing; as well as the correction of postural errors, and incipient deformities of the feet and spine. In a remedial way, it eliminates or palliates dietetic errors and lessens the likelihood of malnutrition affecting other children of the household. Health classes to function properly should be articulated with a general hospital or dispensary, the home and various agencies which can supplement and augment the work of the class. To provide for these articulations, it is essential to have a social service nurse and one or more friendly visitors, who can correlate the various agencies and activities. The knowledge and experience of social service nurses, broad as they may be, are insufficient to enable them to deal satisfactorily with many home problems. For this reason a teacher of domestic sciences and arts is almost a necessity. In addition to her special work with the home, it is designed to arrange for various classes for mothers and older children, with a view to instilling a working knowledge concerning the numerous phases of home making that are so intimately related with family health.

In his own classes the author has established a certain amount of competition among mothers by having 3 types of admission cards, indicating 3 relative degrees of proficiency in carrying out the instructions given, and in coöperating towards a higher standard of health habits and methods of living. Mothers are promoted and their own efforts determine the rating deserved.—I. S. Wile, *Arch. of Pediatrics*, Mar. 1920, 162. *(D. G.)*

✚

Cats and Human Diphtheria.—Dr. Savage after examining bacteriologically the nose and throat of 8 healthy cats and 12 kittens which had not been associated with cases of human diphtheria found that all the kittens and 3 of the cats failed to show any bacilli which at all resembled diphtheria bacilli. In the case of the remaining five cats bacilli closely resembling the Klebs-Loeffler were recovered, but with one possible exception it was definitely considered that they were not true diphtheria bacilli. The exception was in the case of a cat which was examined three months after the first examination.

Very similar results followed experiments on cats which were associated with cases of human diphtheria, and finally Dr. Savage sought to infect kittens with the disease artificially, for as he observes if, as so often has been asserted, cats suffer from diphtheria, or even if it be merely advanced that they act as carriers of the diphtheira bacillus in their throat or nose, it should be possible to infect them artificially and set up either condition. Feeding experiments were unsuccessful, throat and nasal swabbing met with a like result and contrary to expectation diphtheria bacilli implanted into the nasal cavities were unable to survive beyond a very short period. Dr. Savage expresses the definite opinion that cats do not act as diphtheria carriers, and further states that it would appear that the mucous membranes of these animals are particularly inimical to diphtheria bacilli.—W. G. Savage, *Jour. of Hyg.* Feb. 1920, 152. *Medical Officer*, Apr. 17, 1920.

✚

The Fly a Carrier of Trachoma Virus.—The direct transmission of the virus of the granulomatous conjunctivitis of hot climates is an obvious method of infection, and experiments have shown that the most trivial lesion of the conjunctiva renders the surface susceptible to inoculation. The possibility of infection by flies is also obvious; and in Tunis fresh cases of conjunctivitis occur most frequently at the beginning of the autumn, when flies are most numerous and troublesome. An Algerian monkey *(Macacus innuus)* is readily susceptible to the virus and, when infected, presents a granular conjunctivitis of the type occurring in man, which develops quickly, and becomes cured in about two months. In two experiments flies were kept for three hours in tubes containing the secretion from cases of trachoma, and were then transferred to a clean cage. After an interval of 24 hours in one experiment, and six hours in another, the heads and feet were cut off and pounded up with normal saline solution. Inoculation of the lids of the monkey, after scarification, with this material was followed by a granulomatous conjunctivitis of typical character.—C. Nicolle, A. Cuénod, and G. Blanc, *Compt. Rend. Acad. Sciences*, 1919, vol. 169, 1124. *Medical Officer*, Apr. 3, 1920, 135. *(D. G.)*

A BOTULINUS OBSERVATION

This interesting photograph, reproduced through the courtesy of Matthias Nicoll, M. D., of the State Department of Health, presents a group of patients in one of the state institutions who were suffering from botulinus poisoning. The outbreak occurred during February, 1920. The pieces of paper adhering to the walls and to the persons of these patients have been magnetized by them. If left undisturbed they would adhere to the men or the objects for a long time.

In his report of the occurrence, Dr. J. B. Ranson, Chief Physician at the institution, writes:

"In connection with this particular outbreak there were several features which have never been identified with any other reported outbreaks of botulinus poisoning which make it of particular interest for reference and study. One was the development of patches in the nose and throat of many of the patients; another one was the development of a pecular static electric phenomena, in that these patients, and these only, were able to magnetize sheets of paper to a remarkable degree; the paper after being magnetized by these patients would adhere to any object, walls and rooms for hours and very difficult to shake; these same patients, by rubbing their hands and touching the electric bulb, would cause the carbon filament to vibrate rapidly, even to come in contact with the side of the glass wall of the bulb."

The phenomenon of the magnetization of paper by persons in normal condition in winter weather is well known to physicists and popular experimenters. If these observations point to a febrile condition that specially induces such magnetic condition, they will be of interest in suggesting closer study of the new effect. Unless the men were really the only persons affected, it seems strange that the observers did not find the same phenomenon in their own handling of the paper, and the fact of controls is distinctly mentioned by Dr. Ranson.

Can the Tuberculosis Rate Be Reduced?—The plan of the work reported by Cumming, who has already made several important contributions on the transmission of respiratory diseases, was: (1) to determine the presence or absence of tubercle bacilli on eating utensils after they were used by tuberculous patients; (2) to determine the presence or absence of these organisms on eating utensils after these were washed by the usual hand method in hot water; (3) to determine their presence on the hands of patients, and (4) to determine their presence in the air of tuberculosis wards.

He investigated spoon wash water, spoon rinse water, hand scrapings and air washings. Since tuberculous sputum passes through the oral cavity on its way from the lungs of the tuberculous to the exterior, this cavity becomes contaminated. Objects that enter the mouths of these patients become contaminated with the specific organism. As eating utensils are the most frequent inanimate objects which come in contact with the mouth, it is to be expected that guinea pigs injected with the wash water from eating utensils of the tuberculous patient would die from tuberculosis. Thirty-five per cent of the animals so injected died from the injection.

But the outstanding feature of this series of experiments is that the percentage of deaths, 25, from the rinse water injections was almost as great as that from the wash water injections. It is believed that the hand washing of the spoons in this series of experiments can be taken as representative of the usual method of washing eating utensils. If this is so, the difference in the percentage of deaths between the animals injected with washings and rinsings indicates that only about 30 per cent of the spoons used by tuberculous patients are rendered free from the organism by the usual hand method of washing.

This group of rinse water injections, with its 25 per cent mortality, demonstrates the facility of tuberculosis transmission and indicates that in families the eating utensil is the major avenue of distribution. The universal application of the principle of eating utensil asepsis will accomplish more in the control of tuberculosis than will any other single measure of practical application.—J. G Cumming, *Jour. A. M. A.* Apr. 17, 1920, 1072. *(D. G.)*

Prophylaxis of Infantile Diarrhea.—The author reports the remarkable record maintained at a home for infants, where for a period of 22 years no case of diarrhea originated in the home and there was not a single death from that cause. He attributes this result to a strict system of dealing with the children. (1) All incomers were isolated on arrival until such time as it was certain that their motions were normal. (2) A special room provided with washing apparatus and slop sink, was set apart to which all babies had to be taken whenever the napkins required changing. (3) As the napkins were removed they were immediately placed in a disinfectant, the nates were washed and bathed with a disinfectant, the nurse washed and disinfected her own hands, and those of the child and then put on fresh napkins. (4) A special nurse was detailed for this duty, and she was not permitted to take part in the preparation and distribution of food to the children. (5) The food was kept in a larder and, except at meal-times, was out of all contact with the children and their service.—G. D. Sherwood, *Lancet*, Apr. 24, 1920, 906. *(D. G.)*

✚

Early Diagnosis of Tuberculosis with X-Ray.—There are two methods of X-Ray examination of the thorax, radioscopic and radiographic. With the former one can study the function and with the latter the structure of the lung. Since functional derangement frequently precedes visible structural change it will be evident that in many cases we must look for the earliest manifestations of disease in the radioscopic picture (fluorescent screen). The importance of observing any limitations of diaphragmatic movements as an early sign of tuberculosis has long been realized. In the experience of the author there is a stage even earlier than that of actual limitation, this stage can best be described as hesitation, and it is his belief that this is, so far as our present knowledge goes, the earliest sign of infection. In a typical case it will be seen that the diaphragm on the affected side commences its descent during inspiration a fraction of a second later than on the sound side. —M. Berry, *British Jour. of Tuberculosis*, Jan. 1920, 12. *(D. G.)*

THE PRIVY AND THE WELL

A PHILIPPINE STUDY IN CAUSE AND EFFECT

The happy days of childhood we often call to mind; we love to live them o'er again by memory's light refined—Zacate and camotes in the field of fragrant hay, the garden and the privy, and the well not far away. The back yard with its litter of manure all around about; the garbage heap where flies galore flew buzzing in and out; the pig-sty and the chicken coop; the dogs that played all day on the ground used for a privy, with the well not far away. We took our joys and sorrows as they chanced to come along; my brother had "makati" and he didn't grow up strong; Juanith died of fever—it was mighty sad that day—but we didn't blame the privy nor the well not far away. In those good old days mosquitoes used to sing the whole long night, but we would keep the house tight closed and thus avoid the bite; but Pedro got the ague and Maria pined away—mosquitoes—foul air—privy, and the well not far away. We used to think that death was just a punishment for sin—the sin of ignorance, I say! So let us now begin to try and get the windows screened but open night and day, and a sanitary privy with the well quite far away. Let's try and wash our face and hands, let's clean the back yard, too; let's rid ourselves of fevers and the chills and ague crew. Let in the air and sunshine but keep the fly away from the place used for a privy with the well far, far away.

—*Philippine Health Service Bulletin.*

CONVENTIONS, CONFERENCES, MEETINGS

July 16-17, Seattle, Wash., Washington Health Officers' Association.

August (—), Florida State Health Conference.

August 10, Portland, Ore., American Society of Civil Engineers.

August 20-21, Denver, Colo., National First Aid and Rescue Contest.

September, Oklahoma City, Okla., Oklahoma Tuberculosis Association.

September 6-7, Omaha, Neb., Missouri Valley Medical Society.

September 6-10, Holyoke, Mass., New England Water Works Association.

September 7-8, Ogden, Utah, Utah State Medical Association.

September 7-9, Saratoga Springs, N. Y., Convention of Health Officers of New York.

September 9, Providence, R. I., Rhode Island Medical Society.

September 9, San Francisco, Cal., California Tuberculosis Association.

September 9-11, Cheyenne, Wyo., Northwestern Tuberculosis Conference.

September 10-11, San Francisco, Cal., Southwestern Tuberculosis Conference.

September 13-17, San Francisco, Cal., American Public Health Association.

September 14-15, Springfield, Ill., Conference Illinois Officials and State Department of Public Health.

September 16-17, Springfield, Ill., Illinois Health and Welfare Association.

September 22, Kentucky Tuberculosis Association.

September 22-24, South Bend, Ind., Indiana State Medical Association.

September 29-October 3, Cleveland, O., National Safety Council.

October 4-10, Montreal, Canada, American Association of Occupational Therapy.

October 4-10, Montreal, Canada, American Hospital Association.

October 9, Ottawa, Canada, Canadian Association Prevention Tuberculosis.

October 11-13, St. Louis, Mo., American Child Hygiene Association.

October 13-15, Chicago, Ill., Association of Railway Surgeons.

October 22-26, New York City, American Dietetic Association.

The A. P. H. A. Meeting at San Francisco is only Seventy days away!

September 13-17, 1920.

Plan your vacation so as to be there!

STATE HEALTH NOTES—LEGISLATION

National.—The bill (S. 3383 and H. R. 11927) to increase the pay of the Army, Navy, Marine Corps, Coast Guard, Coast and Geodetic Survey, and the Public Health Service was signed by the Vice President and the Speaker of the House of Representatives on May 15 and was approved by the President on May 19. The first section provides for increases as follows: commencing January 1, 1920, commissioned officers of the Army, Navy, Marine Corps and Public Health Service shall be paid in addition to all pay and allowances now allowed by law, increases at rates per annum as follows: Colonels in the Army and Marine Corps, captains in the Navy, and assistant surgeons general in the Public Health Service, $600, lieutenant-colonels in the Army and Marine Corps, commanders in the Navy, and senior surgeons in the Public Health Service, $600; majors in the Army and Marine Corps, lieutenant commanders in the Navy, and surgeons in the Public Health Service, $840; captains in the Army and Marine Corps, lieutenants in the Navy, and passed assistant surgeons in the Public Health Service, $720; first lieutenants in the Army and Marine Corps, lieutenants (junior grade), acting assistant surgeons and acting dental surgeons in the Navy, and assistant surgeons in the Public Health Service, $600; second lieutenants in the Army and Marine Corps, and ensigns in the Navy, $420; Provided, That contract surgeons of the Army serving full time shall receive the pay of a second lieutenant.

Another bill which has passed the Senate and House and has recently received the signature of the President is H. R. 12775, an act to amend an act entitled "An act for making further and more effectual provision for the national defense, and for other purposes." Section 10 concerns the Medical Department of the Army and provides for one Surgeon General with the rank of Major General and two assistants with the rank of brigadier generals. Hereafter members of the Army Nurse Corps are to have relative rank as follows: The superintendent shall have relative rank of major; the assistant superintendents, director, and assistant directors, the relative rank of captain; chief nurses, the relative rank of first lieutenant; and nurses, the relative rank of second lieutenant; and as regards medical and sanitary matters and all other work within the line of their professional duties shall have and shall be regarded as having authority in and about military hospitals next after the medical officers of the Army.

H. R. 9521 is an act to prevent hoarding and deterioration of, and deception with respect to cold storage foods, to regulate shipments of cold storage foods in interstate commerce, and for other purposes. It was passed in the Senate May 17, with amendments and on May 18 the House disagreed with these amendments and asked for a conference. The act requires all goods kept in cold storage more than 30 days to be marked with the date placed in storage, and taken out of storage. It shall be unlawful for any person to ship, deliver for shipment, or sell, in commerce, any article of food that has been held in cold storage for twelve months or more. The Secretary of Agriculture is empowered to enforce the act. The punishment for violation is a fine not exceeding $1,000 or imprisonment for not more than one year, or both. The sum of $200,000 is provided to enforce the act.

H. R. 11841 amends an act granting additional quarantine powers and imposing additional duties on the Marine Hospital Service, approved February 15, 1893. It was introduced May 8, 1920, and requires vessels clearing for any port in the U. S. to obtain a bill of health from the consular officer or his medical officer.

H. R. 13627 is to amend an act to authorize the Secretary of the Treasury to provide hospital and sanitarium facilities for discharged sick and disabled soldiers, sailors and marines. It passed the House May 21 and is now before the Senate. It provides for the purchase of a building in the District of Columbia now leased as a hospital.

H. R. 14315 is a bill to authorize an appropriation to enable the Secretary of the Treasury to provide medical, surgical, and hospital services and supplies for patients of the Bureau of War Risk Insurance and of the Federal Board for Vocational Education, Division of Rehabilitation, suffering from neuro-psychiatric and tubercular ailments and diseases, and for other purposes. It was introduced in the House on May 29 and referred to the Committee on Public Buildings and Grounds. This bill provides for three hospitals for neuro-psychiatric patients, one each

in the Central Atlantic Coast states, the region of the Great Lakes, and the North Pacific Coast states. It also provided two hospitals for tuberculosis patients, one in the Rocky Mountain states and one in Southern California. The sum of $10,000,000 is authorized for this purpose.

The Sundry Civil Bill (H. R. 13870), which passed the House on May 11 and passed the Senate with amendments on May 24 makes the following appropriations for the Public Health Service:

Pay, allowances and commutation of medical officers	$ 856,000
Pay of acting assistant surgeons	275,000
Pay of all other employes	740,000
Freight, transportation and traveling expenses	40,000
Fuel, light and water	135,000
Furniture and repairs to same	8,000
Purveying depot, purchase of medical, surgical and hospital supplies	85,000
Hygienic Laboratory	45,000
Marine hospitals	625,000
Medical Examinations, care of seamen, etc.	220,000
Preparation and shipment of remains of deceased officers	5,000
Journals and books	500
Total	$3,034,500

The following is also provided:

For medical, surgical and hospital services and supplies for beneficiaries (other than war risk insurance patients) of the Public Health Service	$4,000,000
Quarantine service	255,000
Prevention of epidemics	355,000
Field investigations	300,000
Interstate quarantine	25,000
Rural sanitation	50,000
Pellagra	16,000
Biologic products	50,000
Division of Venereal Diseases	200,000
Hospital and Sanitorium facilities for discharged sick and disabled soldiers, sailors and marines	295,000
This bill also allows	$1,015,000

to the Interdepartmental Social Hygiene Board.—*(J. A. T.)*

✚

District of Columbia.—H. R 13846 was introduced on April 29 and referred to the Committee on the District of Columbia. It is a bill to regulate the practice of undertaking and embalming in the District of Columbia, and to safeguard the public health. The bill provides for a board of examiners which shall license all undertakers and embalmers in D. C. after a suitable examination.—*(J. A. T.)*

✚

New Mexico.—Amendments have been passed to the Regulations Governing the Reporting and Control of Communicable Diseases by which the names of cases of venereal diseases are to be reported, under special circumstances, where treatment is not continued, or the patient so conducts himself as to be a menace to society. In the latter case the health officer is given authority to isolate such persons.

✚

North Dakota.—By act of the last legislature, the budget of the North Dakota State Board of Health ceases to operate after July 1, 1920.

✚

Pennsylvania.—During the year 1919 the Legislature of the State of Pennsylvania passed 11 acts affecting the public health in addition to a number of amendments concerning minor matters.

Act No. 136 authorizes the county commissioners in any county or the authorities of any city of the third class to erect joint hospitals for communicable diseases. Fifteen sections deal with the details of coöperation. By act 166 certain amendments were made to the laws concerning the health boards in cities of the third class. It is provided in these amendments that the council of the city shall have authority to appoint members of the board, their officers and subordinates. The second change in existing laws provides that the city clerk shall be *ex officio* secretary of the board of health.

Act 191 provides for the appointment by the Governor by and with the consent of the Senate, of a Deputy Commissioner of Health in the State Board, to be a physician of at least ten years professional experience and a graduate of a licensed medical college. The salary is to be $6,500 a year and necessary expenses.

Act 198 is to provide more effectual protection of the public health. It requires evidence of vaccination against smallpox or of immunity to the disease from every child

seeking to enter or attend any of the schools, public or private. Certificates of vaccination must be in accordance with State regulations. Act 210 authorizes the financing by the boroughs of the construction of sewage plants or sewage purification plants.

Act 253 and Act 271 consider the details of medical inspection in the public schools, the act last named taking from boards of school directors the option they formerly possessed of deciding not to have medical inspection in the schools of their districts. Act 400 enumerates the communicable diseases, 26 sections being devoted to details of notification, quarantine, forms and records, technique, etc. Act 411 limits the keeping and slaughtering of animals save under permit of the department of health.

Act 442 makes it unlawful for any individual or association to advertise as being engaged in the business or profession of treating diseases of the generative organs of either sex. It is likewise unlawful for any publisher to insert advertisements of such nature in any of its publications. Penalty, $1,000 and imprisonment for not more than a year. Act 446 concerns itself with the education of children mentally or physically defective.

The text of these amendments together with the regulations of the Advisory Board of the Department of Health, Commonwealth of Pennsylvania, find place in the official publication of the Department, *Pennsylvania Health Bulletin*, No. 103.

STATE HEALTH NOTES—GENERAL

Alabama.—Dr. L. W. Johnston, of Tuskegee, recently elected President of the Alabama State Medical Association, has been one of the most conspicuous members of the medical fraternity in the state for a number of years. He is a graduate of the Medical Department of the State University and has served for a number of years on the State Board of Censors and the Committee of Public Health of the State Medical Association.

A conference of the County Health Officers of Alabama was held in Montgomery, June 4 and 5, 1920. The State Health Officer, S. W. Welch, M. D., in addressing the group, quoted the statement of Dr. L. L. Lumsden, of the U. S. P. H. Service, made at the conference of the Surgeon General with the state and provincial health officers in Washington, D. C.: "According to data secured in January, 1920, by correspondence with state health officers, there are eighty-eight full-time county health officers employed in the United States, sixteen of whom are maintained by counties in Alabama." Dr. Welch was gratified that each of the 16 health officials was present in response to his invitation, and each was given an opportunity to report upon the activities of his unit, and the progress made during the past six months. These reports revealed a decided advancement in the technique of rural health work.

Two years of experience with numerous and varied types of sanitary latrines have led, by a steady process of elimination of the impractical and unfit, to the selection of four basic types which are now recommended by the department of health. These are—named in the order of their economic and sanitary value—the chemical toilet—the septic tank; the septic privy and the pit privy.

In towns of 200 or more homes not served by sanitary sewers, the box and can system with scavenger service may be successfully operated; a system of this sort which serves less than 200 homes cannot be self-supporting upon the monthly fee basis, and is therefor impractical in operation.

It had been recognized by many of those present that future success in achieving 100 per cent rural sanitation must depend upon standardized and commercialized equipment for these structures, combined with simplicity of installation. Dr. W. E. Burt, of Talladega county, has demonstrated the feasibility of this by securing from commercial sources the production of the following approved types of equipment, which may be purchased upon application to the health office: A septic tank and septic privy of cement construction, a wooden box for pit type, and cast iron, cement and wooden boxes for the box and can system. The commercialized product shows a distinct gain in economy and ease of installation; it also has the advantage of esthetic values

which will encourage adequate care in operation. It is believed that when the farmer can drive into town and purchase from an intelligent salesman a sanitary appointment for his home, which has been selected as a result of personal inspection and understanding, he will be as eager to make this purchase as he now is to buy other house furnishings which he sees displayed in the shop window.

The Executive Secretary of the State Anti-Tuberculosis Association, Mr. J. M. Graham, gave the Conference his assurance of a complete understanding between the state and county health officials, and the Anti-Tuberculosis Association, which will result in the immediate future in the addition of a special tuberculosis nurse to the staff of the Bureau of Public Health Nursing of the State Board of Health.

The discussions which developed during the meeting were enlivened by comments upon the work now being accomplished by the various divisions of the State Board of Health.

Before adjournment it was decided that a second conference will be held in Birmingham at the end of six months.

✚

Kentucky.—The State Board of Health held its ninth annual Health Officers' Conference May 10 to 15, in Louisville, which included for the first time every public health nurse in the state, the meeting being a complete success. Prominent state and city officials, as well as many physicians and nurses from other states, were present. A paper on "The City Health Department" was read by Dr. Wm. H. Peters, Health Officer of Cincinnati.

✚

Maine.—The Maine Anti-Tuberculosis Association has recently reorganized into the Maine Public Health Association for the purpose of entering into a broader health work in Maine than was possible under the old name and by-laws. Such work as prenatal care, child welfare and venereal disease, as well as tuberculosis work, will be now included in its program. W. A. Harris is its executive secretary. One aim in the reorganization is to unify under one head all the private health organizations in the state and to work more closely with such state departments as the Maine Department of Health, School Department, Department of Charities and Correction, and others.

Dr. A. L. Smith, of Machias, has been appointed District Health Officer for Hancock and Washington counties. This appointment completes the ranks of the district health officers in Maine, making eight for the state. Dr. Smith, who is a graduate of Jefferson Medical College, Philadelphia, has been a practising physician in Machias since 1896, and for fifteen years has been connected with the U. S. P. H. Service, with the rank of Acting Assistant Surgeon.

Miss Edith M. Soule has been appointed Director of the new State Division of Public Health Nursing and Child Welfare, and will assume her duties in July. Through the coöperation of the Red Cross and the Maine Public Health Association, this division has been made immediately possible to the State Health Department.

✚

Michigan.—The recently appointed health officers in Michigan are: Alpena, Dr. Duncan A. Cameron; Hastings, Dr. C. H. Barber; Charlevoix, Dr. F. F. McMillan; Escanaba, Dr. H. J. Defnet; Hancock, Dr. W. H. Dodge; and Saginaw, Dr. J. H. Powers.

A portable laboratory is under construction by the Michigan Department of Health, under the direction of State Sanitary Engineer Edward D. Rich and Director of Laboratories C. C. Young. It consists of a special body mounted on an automobile chassis and is equipped with the necessary apparatus and materials for bacteriological and chemical analysis of water and for the various kinds of clinical work that the State Laboratory is called upon to do. This summer a campaign to improve conditions affecting public health is to be started at the various summer resorts located in the state. By means of this truck it is believed that work can be done in a very effective and rapid manner. It can also be used in connection with investigation of typhoid fever epidemics and in stream pollution work.

For the purpose of obtaining comparative data in two counties of the state in which conditions are of a contrasted character, the Michigan Department of Health is conducting physical examinations of all

the school children. The reports, when tabulated, should show some interesting findings in view of the totally different conditions in the localities chosen.

"Three Million Fingers" is the striking caption under which the Detroit Department of Health calls attention to the need for cleanliness in places which handle foodstuffs. The citizens receive their meals and supplies from 30,000 different persons, 80 per cent of whom are aliens. Many can neither read nor write the English language, and printed rules and instructions are not readily grasped. The difficulty of preventing disease transmission by food handlers at times of an influenza epidemic may be appreciated from the above.

About 200 children, anemic or tuberculously inclined, are attending special open air schools in Detroit. The Board of Education is arranging for the care of 900 more who have been discovered by the Department of Health nurses and for whom there are now no such provisions.

The Detroit Department of Health has found it necessary to ignore complaints of insanitary dwellings unless made in writing and with the signature of writer attached. Last year 1,213 complaints were found to be without cause and represented the efforts of people to vent their spite on unfriendly neighbors.

Those illegal practitioners of medicine who prey upon the sick, offering quick sure cures for all ailments, are 34 less in number than they were a year ago, according to a recent bulletin of the Detroit Board.

Thirty-seven per cent of the physical defects, exclusive of the teeth, found in school children in Detroit by Health nurses in 1919 were corrected during the year. Ten per cent are under treatment. The remaining 53 per cent are uncorrected.

✚

New Mexico.—A case of Malta fever has been reported in a goat herder in Chaves county. The patient denies the use of goat milk, but drank water from a cistern from which the goats drank and through which they walked.

The State Health Department, in investigating an outbreak of diphtheria at Dilia, in Guadalupe county, found seven carriers out of 47 persons examined. With the control of the carriers the outbreak rapidly diminished.

A special "Keeping Fit" campaign has been conducted. The exhibit has been shown in 20 high schools to 986 boys and adults. W. W. Raisner and J. V. Hopkins were the field representatives in charge of the exhibits.

Through a questionnaire to its physicians, to which less than half of these medical men replied, it has been determined that only a small portion of the patients with venereal disease in the state are receiving treatment other than by themselves with patent medicines.

✚

New York.—Prompt and vigorous action by the health officer of Fort Covington, Dr. McArtney, undoubtedly prevented a serious outbreak of smallpox in that community recently. Several hundred people who were promptly vaccinated escaped the disease, while the two persons who refused to be vaccinated developed smallpox.

The Bureau of Venereal Diseases of the State Department of Health has been conducting very active campaigns in the following cities: January, Utica; February, Schenectady; March, Binghamton; April, Elmira and Hornell; and May 3, Corning. In addition, work in the rural districts was carried on under the auspices of the Home Demonstration Bureau in the following counties during the months of April and May: Chemung (Elmira), Broom, Tioga, Chenango, Orleans, Monroe, Jefferson and Oneida. Since the bureau was established more than 100,000 people have been reached through its educational propaganda.

The Annual Conference of Health Officers of New York State will be held at Saratoga Springs on September 7, 8 and 9, with headquarters at the Grand Union Hotel.

The Wayne County Red Cross has established two public health nursing districts with Sodus the headquarters for the northern section and Lyons for the southern, the work in the respective districts being facilitated by the use of automobiles furnished by the chapter.

An outline of a lecture on tuberculosis for use before lay audiences in connection with the department set of lantern slides on this subject is now available, and may

be obtained by writing to the Supervisor of Exhibits, State Department of Health Albany, N. Y.

Dr. Minna Mary Rohn, Health Officer of the Lake George Health District, is now completing a sanitary survey of the shores of Lake George. This will be furnished to the summer residents on the lake.

Glens Falls has also completed a sanitary survey, the report of which is to be distributed to the citizens.

A survey which Dr. Alfred H. Sevenson, Professor of Preventive Dentistry at Columbia University, declares is the first of its kind ever made in New York City, is being undertaken by the Health Service Department of the New York County Chapter American Red Cross.

All the free dental clinics for children in the city are asked to coöperate in getting together complete and authoritative statistics on the extent and character of the dental needs among the children.

A letter sent by the Department to each of the 47 clinics on Manhattan Island asks their coöperation and requests them to add to their card indexes of cases a type of record card which has been prepared by the Department in consultation with the Association for Improving the Condition of the Poor and the leading dental authorities in the city. The card suggested is of the simplest kind and is designed to make a record of examinations only. It is not to supersede any existing methods of recording examinations and treatments, but it will be uniform for all 47 agencies.

On the basis of returns for twelve months, the Department plans to make a report, showing the scope and character of the needs for dental work among the children in New York City and any need that may exist for increased facilities for free treatment.

✚

Oklahoma.—The Medical School of the State University of Oklahoma was recently given "A" standing by the Council on Education of the American Medical Association. Dr. LeRoy Long is the dean.

Fully 400 physicians attended the 28th Annual Meeting of the Oklahoma State Medical Association held in Oklahoma City May 18-20, 1920, inclusive.

Pennsylvania.—The State Commissioner of Health is making preparations for the training camp to be held on the grounds of the Mont Alto Tuberculosis Sanatorium on June 28 and to continue until July 2. Those who are to attend are all of the county medical directors and certain of the state nurses. The subjects that will be emphasized include child health, school health, milk inspection and laboratory methods. Special stress will also be laid upon the coördinating of the activities of various civic organizations of each county in the carrying out of the county health work.

✚

North Carolina.—This state is taking steps through the distribution of advice, suggestions and legal forms of procedure, applicable under the Guilford County Public Morals Act, which was extended to the entire state by enactments of 1919, to combat various vices, especially prostitution. That statute makes using or leasing any building, when that building is devoted to immoral purposes, such as prostitution, gambling or illegal sale of intoxicating liquors, a public nuisance. It makes the building itself and the furniture and fixtures in it also a nuisance. There are two methods by which this nuisance may be abated:

First, If it is established in a criminal proceeding against the owner or lessee of such building that such nuisance exists, an order of abatement shall be entered as part of the judgment in the cause.

Second, By a civil action for injunction brought in the name of the State of North Carolina on the relation of a prosecuting attorney (in case the prosecuting attorney fails to act, by any citizen of the county wherein the alleged nuisance is to be found).

If the injunction is made permanent, a judgment making it so shall include an order of abatement, which order shall direct the removal from the building or place of all the fixtures, furniture, musical instruments or movable property used in conducting the nuisance and shall direct a sale thereof in the manner provided for the sale of chattels under execution. It shall further command the closing of the building, or places, against its use for

purpose, and so keeping it closed for period of one year, unless sooner released. This method of repressing prostitution does not involve the expenditure of public funds for the maintenance of persons convicted of violating the law. The cost of court procedure is at least partially covered by proceeds from the required sale of furniture found in such houses.

With a typhoid death rate that has been steadily reduced during each of the past five years, the State Board of Health is preparing for another intensive effort against this most easily preventable of all the preventable diseases that annually take the lives of North Carolinians. Through its field men this summer the State Board of Health will strive for the vaccination of a minimum of 50,000 persons.

The work will be directed by Dr. Charles S. Mangum, of the medical faculty of the University of North Carolina, and Dr. Luther T. Buchanan of the medical faculty of Wake Forest College.

✚

South Carolina.—The Darlington County Health Department, in coöperation with the County Board of Education, began a campaign against the house fly on April 6. A feature of this campaign was the contest for the school children. Prizes were offered to the school children of the county drawing the most attractive posters showing the house fly as a carrier of disease.

Separate contests were arranged for the white and colored schools. The first prize was $20.00; second, $10.00, and third, $5.00.

The contest closed on April 30, with 129 contestants from the schools of white children and 31 from the negro schools. It is presumed that the smaller number of the latter was on account of the closing of the schools during the time of the contest. The prize winners in the white schools were all girls, while of the three in the schools for colored children, the second and third prizes were taken by boys.

For one of the results of the campaign 316 homes of white people have been screened against flies, and the houses of 77 of the darker race.

✚

Virginia.—During the first four months of 1920 there have been 1,821 reported cases of smallpox in the state, with six deaths, against 770 reported cases in the same period of 1919 and ten deaths for the entire year of 1919. During 1917 the disease caused but two deaths, while in 1918 six deaths were attributed to it. In January, 1919, there were 129 cases, against 467 in January, 1920. In February, 1920, the disease reached its apex for the season, with 703 cases, against 113 for the corresponding month of last year. In March the figures were 326, against 261 for March, 1919, while in April they were 235 and 267 cases, respectively. During April of this year smallpox was reported in 34 of the 100 counties and during the year it has appeared in approximately half of the counties of the state.

Nearly three times as many women are dying from the perils of motherhood as would succumb if all of them had the benefit of the care of painstaking physicians. According to a study of Virginia vital statistics made by the State Registrar, Dr. W. A. Plecker, there is but one death out of 500 births where the mothers have proper and competent attention. On the other hand, under conditions as they exist, with a large proportion of mothers deprived of such painstaking care, the maternal death rate actually is one to every 185 births, making maternity second only to tuberculosis in its danger to women between the ages of 15 and 45 years.

State Health Commissioner Ennion G. Williams urges the more general use of whooping cough or pertussin vaccine in dealing with epidemics of this disease so dangerous to small children. Excellent results are obtained, even where the child has begun to cough. The use of the vaccine is recommended when whooping cough breaks out in the neighhborhood and is urged where the children have been exposed. Its use modifies the cough, even after the disease has become well-seated.

State health workers are very much pleased by health work undertaken voluntarily by the senior class of the St. Paul Normal and Industrial School, an institution for colored children at Lawrenceville. This class, following a course given it in physical inspection of school children by Dr. Mary Evelyn Brydon, of the Bureau of Child Welfare of the State Department

of Health, inspected the 51 children in the primary grade of the school with the following results: Ten were found with defective hearing, 39 had defective teeth, and two were suffering from throat trouble.

✚

West Virginia.—The State Medical Association for the past two years has devoted one night exclusively to the discussion of public health questions. On the 19th of May a night meeting was addressed by Dr. Carl F. Raver on "The Necessity for a New Vital Statistic Law"; by Dr. S. L. Jepson, Health Commissioner, on "The Health Center as a Factor in Disease Control," and a great treat was given to the large audience by an address by Assistant Surgeon General A. J. McLaughlin on "Preventive Medicine."

✚

Wisconsin.—To acquaint medical men of the state more fully with their obligations as guardians of the public health, representatives of the Wisconsin State Board of Health recently visited a number of county medical societies and addressed them on public health movements whose success is largely dependent upon the practicing physicians. These speakers were Dr. Robert Oleson, acting Epidemiologist; Dr. W. D. Stovall, Director of the State Laboratory; and Dr. I. F. Thompson and Dr. G. W. Henika, of the Bureau of Social Hygiene.

Citizens of Appleton, Wis., and adjoining communities have subscribed $500,000 to build a new St. Elizabeth's hospital to enlarge the city's hospital facilities which are now totally inadequate for the demand.

Dr. A. J. Dana has been elected health officer of Fond du Lac, Wis., to succeed Dr. N. J. Malloy, resigned.

✚

Nova Scotia.—The Province is greatly encouraged at the approval of the program suggested by the Nova Scotia Provincial Branch of the Red Cross, by the League of Red Cross Societies, Geneva.

The splendid public health course for nurses outlined in this program, organized under the auspices of Dalhousie University in coöperation with various other bodies in the City of Halifax and financed by free scholarships granted by the Red Cross, is about to be very greatly supplemented. Col. Frank V. Woodbury, who has recently been demobilized from the Army Medical Service, has been appointed by the Executive of the Nova Scotia Branch of the Provincial Red Cross to devote his entire time to the organization, selection of staff, and working out of details of equipment and transport for the two traveling clinics that are to go throughout the province during the months of July and August.

These clinics are to be organized on a semi-military basis and will carry with them trained specialists with operating room outfit and complete equipment for removing tonsils and adenoids and correction of other remedial defects found in school children in the remote sections of the province; a dentist with chair and outfit for cleansing and putting into hygienic condition the mouths of school children unable to get such service; a tuberculosis specialist, who will coöperate with the family doctor in helping determine the diagnosis where the local physician seeks advice; an eye specialist to give advice and to fit or prescribe lenses where advisable; a nursing corps to assist the doctors in their operative procedures, some trained to go into the homes of the tuberculous to establish such sanitary reforms as may be required; and some of the doctors and some of the nurses to be trained in health teaching. The entire personnel will coöperate closely with the local family doctor.

The plan of the Red Cross even contemplates carrying with these traveling clinics facilities for impressing sanitary lessons by educational moving picture films and in communities where moving pictures may not be shown, graphic lessons by projecting lanterns, the lecturers with the party being trained to elaborate and supplement such graphic lessons.

It is believed that the traveling clinics planned for Nova Scotia will have very far-reaching effects throughout this province and throughout Canada, both in promoting public health and in relieving life handicaps in isolated communities, such as the smaller fishing villages.

Full diaries are to be written up of the experiences of those associated with the traveling clinics, and publicity will be given in the press to the progress of the movement.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh, P. M. Holmes, and E. B. Starr.

Devices to Protect Sand-Blaster Against Dust Hazard.—This is a study of the efficiency of certain devices used for protecting workers in the sand-blasting process. The study was made in a plant where the sand-blast was used upon automobile parts. The process was done in the usual cabinets having an exhaust and with hoppers below. The operators were provided with the usual "muzzle" type of rubber respirator with a piece of sponge and an air valve, also with helmets. The Palmer water-spray apparatus was used for dust counting; highest counts for dust ever reported were obtained from within the sand-blast cabinet (an average of over 16 million particles per cubic feet). It was found that the respirator removed about 92 per cent of the dust by count and 97 per cent by weight. The combination helmet respirator gave distinctly better results but counts were still far in excess of the limits to be considered safe. The combination of respirator and helmet provided with positive air pressure (from 2.3 to 3.7 cubic feet per minute) greatly reduced the amount of dust caught within the helmet and brought about a condition remarkably satisfactory. The writers recommend that for polishing shops the weight of dust should generally be kept below 0.06 milligrams per cubic foot and should not average over 0.03 milligrams. In fact, it was found that the helmet supplied with the positive air pressure alone without the respirator gave practically as good results. It is recommended that workers within sand-blast cabinets be provided with positive-air-pressure-helmets and with respirators of the generally used types.—Winslow, Greenburg and Reeves, *Public Health Reports*, March 5, 1920.

✝

Poultry Farming an Occupation Suitable for Consumptives.—The waste of human material caused directly by the tubercle bacillus calls for immediate action. Because in poultry farming, to be successful, workers must have a full knowledge of the subject, it must be conducted on a large scale and the building up of such a farm requires so much energy as to be out of the question for the average consumptive, but the consumptive may be an employee on such a farm to a great advantage. Several employees should be on each such farm in order to allow one to work fewer hours per week should his condition so require. Consumptives must have working hours regulated to their strength, absence of competition with healthy workers, an abundant dietary, ample opportunity to recuperate when a slight relapse occurs, and lastly, ever-ready help at hand should adverse circumstances be encountered. The conduct of such a farm at Papworth Colony is described. By careful study of each suitable industry along the lines indicated much waste of human material and human energy may be prevented. Varrier-Jones and Woodhead, *The Lancet*, April 3, 1920, pp. 793.

✝

Industrial Hygiene in Japan.—The Kanegafuchi Spinning Company, Limited, describes in a 106 page pamphlet how it cares for its employees and workers. In each of its mills are "hygiene inspectors" and nurses who endeavor to detect sickness in its early stages. Each worker before being employed is given a physical examination and after being hired is vaccinated and examined twice yearly. The temperature of all workers is taken from two to four times each month. At various times doctors stationed at the entrances of the mills watch the operatives passing, later calling up for examination those who show signs of ill health. The superintendent, home visitors, foremen, etc., are instructed to watch the operators for a similar purpose. Dormitories and other buildings are rat-roofed and a bacteriologist is employed solely in anti-plague study. In each mill an anti-plague corps is organized for an emergency. Each mill has a hospital to care for the sick and the company has sanitoria. At the hospitals are nurses with midwifery licenses who attend women employees.

In addition the company makes available recreational and educational facilities and supplies at cost, quarters, food and clothing. It also conducts general welfare and relief work. Funds for the latter being partly derived from the Kanebo Mutual Benefit Association. (*H. N. C.*)

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Francis H. Slack, M. D., and Mr. James M. Strang.

Bacteriology of Vital Pulps.—From pulps of 22 normal teeth all cultures were negative. From 40 teeth with pyorrhea only 17 positive cultures were obtained; from 23 teeth with caries, only 10 positive cultures; from 30 teeth with both caries and pyorrhea, 14 positive cultures. *Streptococcus viridans* was isolated from these vital pulps 29 times; *Staphylococcus albus* 8 times; diptheroid bacilli 3 times; spore bearing ærobes twice, and *Staphylococcus aurens, B. proteus, Streptococcus hemolyticus* and *B. coli* once each. It is concluded that in approximately one-half the number of vital teeth invaded by caries or surrounded by pyorrhea, the pulp is already infected by streptococci.—Arthur T. Henrici, and Thomas B. Hartzell, *Jour. Nat. Dental Assn.*, April, 1920, p. 375.

✚

Problem of the "Positive Throat" in Diphtheria Convalescents.—A vaccine made from diptheria bacilli, not autogenous, was administered in 50 consecutive cases of these persons who were carriers of the bacilli for an undue length of time following the disease. The series occurred in the ordinary course of practice in an isolation hospital. There was no selection and no accessory treatments were at any time employed. Twenty-four of these patients cleared up with but one dose of vaccine, 15 with two doses, five with three doses, one with four doses, three with five doses, one with seven doses and one with eight doses.

In a number of cases a culture characteristically positive 24 hours before vaccination became completely negative 24 hours after vaccination. Thirty-seven of these carrier cases cleared up within a week, 7 within a fortnight, while only 6 cases took longer.—J. L. Brownlie, M. D., *The Lancet*, Mar. 27, 1920, p. 706.

✚

Source and Significance of streptococci in Market Milk.—The saliva, skin and feces of 45 cows were examined for normal streptococci present in these locations, and 37 strains were isolated and studied of which 13 were from the skin and 21 from feces. Twenty-six samples of market milk were then studied from which 72 strains of streptococci were isolated and studied. Fifty-six of these strains were hemolytic, out of which 43 showed characteristics of the hemolytic types most frequently associated with bovine mastitis. Fecal and skin streptococci are practically absent in fresh milk if kept under proper conditions. The principal source of streptococci in milk is the cow's udder. All the streptococci from the vagina, saliva, skin and feces have been non-hemolytic.—F. S. Jones, V. M. D., *Jour. Expt. Med.*, April 1, 1920, pp. 347-361.

✚

Protein Fever. The Effect of Egg-White Injection on the Dog.—A series of experiments was carried out first on guinea pigs then on dogs. Repeated subcutaneous injections of egg-white in guinea pigs produce a constant fever associated with most of the signs of infection. Repeated subcutaneous injections of egg-white in dogs do not affect the temperature curve and do not produce fever. —Seymour J. Cohen, *Jour. of Lab. & Clin. Med.*, Feb., 1920, pp. 285-295.

✚

Wassermann Results With Anti-Complementary Sera.—It is suggested that such sera, instead of being discarded, should be titrated with varying amounts of complement to determine their complement fixing power, and the test then made with this additional amount of complement added. In most cases, clear cut results may be obtained without requesting additional specimens. — Miles J. Brener, M. D., *Jour. Lab. & Clin. Med.*, Feb., 1920, p. 327.

✚

Bacillus of the Colon—Typhoid Group Isolated From a Case of Furunculosis.—It is often considered that staphylococci are the sole causes of boils. The authors record a case where an organism having the morphological and cultural characteristics of the colon group was the causative agent. The cure of the patient by means of an autogenous vaccine showed the etiological relation of this organism.—Oliver and Schwab, *J. Inf. Dis.*, 1920, 26, 336.